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*A National Newspaper for Every Branch of the Industry*

# Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

Vol. 13. No. 1738 — Entered as second-class matter Aug. 27, 1925, Post Office, N. Y., N. Y., Under Act of March 3, 1879. — NEW YORK, FRIDAY, MAY 27, 1932 — 5 Cents. $12 Per Year.

## Ford Report Indicates $11,250,459 Profit on Entire Model A Output

### Estimate Is Based on Balance Sheet With 1927-28 Losses Charged to Model A and Profits Of 1929-30 Credited

New York, May 26.—There seems to be considerable misapprehension and misunderstanding in interpreting the report of condition filed yesterday by the Ford Motor Company with the Massachusetts commissioner of corporations. This statement, which must be filed annually in Massachusetts, is the only official reflection of profit and loss that we get from the Ford organization. The figures presented do not take into account dividends paid to the stockholders who are Mr. and Mrs. Ford and Edsel Ford.

In the year from 1926 to 1931, inclusive, three showed a profit and three showed a loss. The total profit earned in the years 1926, 1929 and 1930 was, in round numbers, $200,000,000. The total loss shown in the years 1927, 1928 and 1931 was $167,000,000, leaving a profit on the six years' operations of $33,000,000.

Some commentators have charged the Model A with a considerable share of the losses. We believe, in all fairness, too large a share of the debit figure. The Model A was launched in December, 1927, which year showed a loss of more than $42,000,000 on operations. Obviously, much of this loss was due to development work on the Model A, as well as to the slump in sales of the old Model T. Some commentators have charged this loss off against the Model A, which is probably fair enough, since a great part of the loss must have been money spent in getting that series ready for the market. But these same commentators have also charged off against

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## CAR OPERATING COSTS DROP; TAX BURDENS GAIN

**Washington, May 26.—A substantial reduction in the cost of operating automobiles has taken place in the last two years as a result of declines in prices for tires, gasoline and lubricating oil, and an estimated considerable drop in the cost of service parts and servicing, according to information made available in the automotive division of the Department of Commerce.**

The reduction in total cost took place in spite of apparent increases in the cost of automobile insurance and taxes, it was stated orally in the division. The following additional information was provided:

While it is difficult to arrive at an accurate figure showing the change in prices of factors in the cost of operating an automobile for a period of years, and no attempt to estimate the percentage of the recent reduction has been made, figures are available indicating the changes in several of the major factors.

It is known, for instance, that the average wholesale price of automobile tires in 1931 was 15 per cent. below the 1930 figure and 18.5 per cent. below the 1929 level.

Estimates of the change in cost of repair parts and repair service are extremely difficult. However, it is believed to be a safe assertion that both the prices of parts and acces-

(Continued on Page 3)

## STEEL PACE TREND DOWNWARD, MOTOR TRADE IS BULWARK

**New York, May 26.—Operations in the steel industry just now are tending to decline, being off 1 point to 24 per cent. of capacity, as against 25 to 25½ per cent. at the recent peak.**

The decline is not significant and may be followed shortly by a rise. On the whole, operations in the steel industry are quite steady, having varied from 21 to 25 per cent. of capacity over several weeks of time.

The automobile industry continues to offer the most promise as a source of near future business for the steel makers. May production of automobiles is estimated at 200,000 units, while production for June will be 230,000 cars and trucks, according to the present outlook. The cheaper priced car makers are expanding production, whereas it is the trend in the higher price field to contract operations.

The steel trade is apparently divided on the matter of trying to secure higher prices for third quarter shipment. Many feel that an advance would be a wrong step which would be followed by a harmful reaction, thus jeopardizing the stable aspects of the steel market. The most logical price advances would appear to be in various forms of steel sheets, which average $30 per ton under quotations of more prosperous years.

## *Mid-Season Models Foreseen As Makers Seek to Spur Sales*

### Temporary Abrogation of Unified Announcement Plan Predicted in Effort to Meet Unusual Circumstances in Current Year

Detroit, May 26.—There is a general feeling in this city that present conditions make it probable that the informal agreement among vehicle manufacturers last year to keep new model announcements until the show period will be rather generally ignored in this depression year.

The agreement was based on a recommendation by the directors of the National Automobile Chamber of Commerce and had no binding effect on the individual manufacturers. The recommendation was intended to discourage the displacing of existing lines, with the consequent "cleanups" of stock in hand during the active selling period of the year. It did not even recommend that any company should not bring out a brand new line. This means simply that a company which had been offering a medium price line would be at liberty even under the terms of the recommendation to bring out a smaller, low price line.

However, it is generally conceded here that the peculiar conditions existing this year make it probable that a number of manufacturers will offer new models earlier than was generally the case last year. In fact, it is known that a number of companies have models in an advanced stage of preparation, some brand new offerings, others revisions of existing lines.

The backing and filling on excise taxes in Washington has had a disturbing effect on the automotive industry. Some executives express the belief that the imposition of a heavy tax will make necessary the production of cheaper lines to compensate for the additional sales obstacle created by the excise levy.

## MOTOR INDUSTRY IS BEST MARKET NOW FOR PIG IRON

**New York, May 26.—The best prospective demand for pig iron over the next few weeks comes from the automobile industry. Production of cars and trucks this month will probably be over 200,000 units, and for June an output of 230,000 units is being predicted. This will help chiefly the Western pig iron producers, but will have some bearing on Eastern pig iron business.**

The iron trade is still marking time along the Atlantic seaboard and no one cares to prophesy when conditions will change. The chief encouragement is derived from the fact that stocks of pig iron in the hands of consumers are at a very low ebb and that when conditions change for the better there should be a rapid pick-up in iron demand.

A survey of foundry activity in Connecticut has revealed that only five out of fifty foundries are working at 40 per cent. or better, while the general average is called 10 per cent., a figure which is regarded as too low by the New York iron trade, which canvasses that district and believes that 15 per cent. is a more representative figure. It is estimated that pig iron sales in New

(Continued on Page 6)

## STUDEBAKER SHIPS 5,000 CARS IN MAY

**South Bend, Ind., May 26.—Shipments of cars by the Studebaker Corporation during May will total approximately 5,000, according to H. S. Vance, vice-president.**

The company will ship about 3,000 Rocknes and 2,000 Studebaker cars, he said. Shipments from the factories during April totaled 6,000 cars.

Mr. Vance added that retail deliveries by dealers during April and the first half of the current month were in excess of factory shipments.

## MAY PRODUCTION EXPECTED TO SHOW MARKED INCREASE

**Washington, May 26.—The output of the automobile industry increased from the low level of March by more than the usual season percentage during April, and in the steel industry, where activity had declined from early February to the middle of April production increased somewhat up to the third week of May, the Federal Reserve Board said today in its monthly business review.**

Purchase of government securities by the Federal Reserve Banks continued in April and the first three weeks of May and there was a considerable growth in the reserves of the member banks.

Otherwise the business indicators were unfavorable in the main. Industrial activity and factory employment declined substantially from March to April, although little change usually occurs at this season.

The volume of production, as measured by the board's seasonally adjusted index, decreased from 67 per cent. of the 1923-1925 average in March to 64 per cent. in April.

Reductions in activity were reported for many leading industries, with sharp declines at cotton and woolen mills and at bituminous coal mines.

The number of wage earners employed at manufacturing establishments declined further between March 15 and the middle of April.

There was a substantial reduction in factory payrolls. Large decreases in employment were reported for the iron and steel, machinery and textile industries.

The volume of employment in the

(Continued on Page 12)

## AUTOMOTIVE PLANTS INCREASE WORKERS

**Washington, May 26. — Increased employment was registered in automotive activities in various territories, according to a survey of the last month just issued by the United States Employment Service. Employment in the automotive industry, generally speaking, however, continued rather sluggish, with part-time operation obtaining at many plants.**

An encouraging phase of allied interest to the automotive industry is the pushing of highway work in many states to such an extent as to take up a considerable part of the employment slack.

Production and employment were increased in several automobile assembling and automobile accessory plants in Chicago.

Overtime obtained in the automobile body plants and tool and die shops of the Detroit industrial district, although part time operations generally prevailed in automobile and automobile accessory factories throughout Michigan, including Flint, Jackson, Detroit and Pontiac. Some improvement was noted in the automobile accessory plants of Grand Rapids. Highway construction was greatly increased in Michigan within the last few weeks, and a large number of men were engaged.

A moderate increase in production schedules and employment oc-

(Continued on Page 6)

## SENATE REDUCES PROPOSED AUTOMOTIVE EXCISE RATES

Washington, May 26.—Doubt still continues to hang over the automotive excise taxation situation. The Senate last night voted to strike out the proposal of its finance committee to increase to 4 per cent. the 3 per cent. tax adopted by the House. The night before it had voted to adopt the House recommendation for a 2 per cent. tax on motor trucks.

The Senate voted down by 52 to 18 a motion made by Senator Vandenberg to strike out the automobile tax entirely.

The Senate then accepted by a vote of 38 to 34 the proposal of its finance committee to raise the rate of taxation on automobile parts and accessories from 1 per cent. to 2 per cent. The House bill carried this levy at 1 per cent.

As the tax bill now stands passenger motor vehicles will pay a 3 per cent. tax, trucks 2 per cent. and parts and accessories 2 per cent.

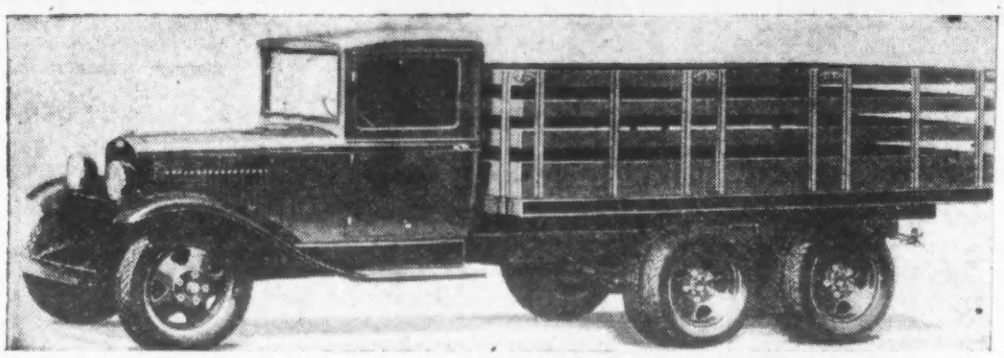
It must not be assumed that this is by any means final. The revised bill must be returned to the House, and the completed measure must then be passed by both bodies. It is considered probable here that there will be much backing and fiddling before the final measure becomes a law.

## BORG-WARNER PARTS SALES REPORTED ON A PAR WITH 1931

**Chicago, May 26.—Borg-Warner Corporation's sales of repair parts have held up well so far this year, according to C. S. Davis, president, and are about on a par with last year.**

One factor in the maintenance of this volume was the opening of two new branches since last fall, which brought the total number operated by the company to nine. Another branch will be opened in Boston shortly. Mr. Davis pointed out that repair parts business for the country as a whole was between 10 and 20 per cent. lower than a year ago.

Borg-Warner is currently receiving increased specifications from Ford.



NEW DODGE SIX-WHEEL TRUCK of 1½ to 3 ton capacity on 153-inch wheelbase chassis. This six-wheel model is offered with both four and six cylinder power plant

## MARVIN OF N. A. C. C. HEADS NEW YORK EXECUTIVES GROUP

**New York,** May 26.—Trade Association Executives in New York city elected J. S. Marvin of the National Automobile Chamber of Commerce president for the ensuing year, at a meeting held today in the Commodore Hotel.

The organization includes 150 executive managers of trade associations having headquarters in New York city. Mr. Marvin's association with the National Automobile Chamber of Commerce dates from its inception and he is widely known in automotive and transportation circles. Others elected to the executive committee are: Vice-president, Joseph C. Fitts, secretary, Heating & Piping Contractors National Association; secretary-treasurer, Maxwell Copelof, executive director, Merchants Ladies Garment Association; Benjamin Schwartz, director general, Institute of Scrap Iron & Steel; Irene L. Blunt, assistant secretary, Silk Association of America.

## ROCKNE TO MAKE 3,000 CARS IN MAY

**Detroit, May 26.—Rockne Motors Corporation will produce around 3,000 cars during May.**

Rockne registrations in 37 states, for which figures are available for April, showed a 100 per cent. increase over the March total in the same states.

The Detroit plant of Rockne Motors is operating on an average of five days a week.

The company is now offering super balloon tires as optional equipment on all standard models at additional cost. The tires require only 20 pounds pressure as against 35 for the standard balloon.

## CRUDE RUBBER OUTPUT MAINTAINED IN APRIL

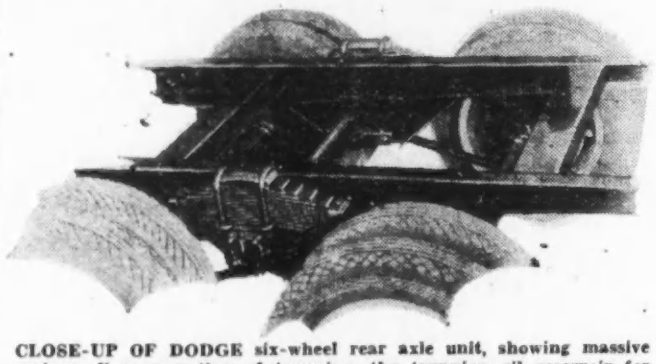
**New York,** May 26.—Production of rubber on small estates in Malaya during April totaled 11,596 tons and that on large estates 18,968 tons, according to the Far Eastern census figures. The corresponding figures for March were 11,434 tons and 18,462 tons respectively.

Stocks on estates amounted to 20,730 tons at the end of April, as against 20,831 tons at the close of March, while dealers' stocks totaled 26,712 tons, compared with 27,416 tons in March.

### H. S. FIRESTONE, JR., NAMED REFEREE AT INDIANAPOLIS

**New York,** May 26.—Harvey S. Firestone, Jr., vice-president of the Firestone Tire and Rubber Company, has accepted the invitation of the Indianapolis Motor Speedway to act as official referee of the 500-mile automobile championship to be held there Decoration Day, May 30. The invitation to Mr. Firestone was sent by Theodore E. Myers, vice-president and general manager of the Speedway. The post is one which has been held in other years by some of the leading men of the business world, including Henry Ford, Harvey S. Firestone, Sr.; Charles M. Schwab, Arthur Brisbane, Vincent Bendix, Charles F. Kettering and W. S. Knudsen.

**CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS**



CLOSE-UP OF DODGE six-wheel rear axle unit, showing massive springs, firm mounting of trunnion, the trunnion oil reservoir for self-lubrication, the torque arms and their points of attachment

## FINANCIAL NEWS

### RUBBER GROWING

**New York,** May 26.—The government Bureau of Statistics of the Netherlands East Indies states that tapping of rubber trees on 256 estates in the Dutch East Indies has been completely abandoned, while tapping on 130 other estates has been partially abandoned, according to advices received by the Rubber Exchange of New York, Inc. The unkept rubber area in the Dutch rubber growing territory is now 49,187 hectares, equivalent to about 122,967 acres, not including periodically tapped estates, or about 13 per cent. of the total tappable area.

### EVANS PRODUCTS CO.

**New York,** May 26.—Evans Products Company and subsidiaries, quarter ended March 31: Net loss after taxes, interest and depreciation, $17,363, against net profit of $5,116, equivalent to 2 cents a share on 244,494 shares of stock, in first quarter of 1931.

### FORD OF GERMANY

**New York,** May 26.—Ford Motor Company of Germany, year ended December 31 (figures in reichsmarks): Net loss after expenses, taxes, depreciation and other charges, 1,696,000, against net profit of 3,215,000 in preceding year.

### UNION CARBIDE AND CARBON

**New York,** May 26.—Union Carbide and Carbon declared a quarterly dividend of 30 cents a share, payable July 1 to stock of record June 3. The previous payment was 50 cents quarterly.

### FORD OF FRANCE

**New York,** May 26.—Cabled dispatches yesterday said the net profits of the Ford Motor Company of France for 1931 were 15,516,000 francs, against 35,127,000 francs in 1930. The net earnings were after expenses and depreciation charges.

### PIERCE GOVERNOR

**New York,** May 26.—Pierce Governor Company, year ended December 31: Net loss after expenses and other charges, $23,857, against $19,770 loss in previous year.

### FORD PITTSBURGH PLANT ON FULL TIME SCHEDULE

**Pittsburgh,** May 26.—The Ford Motor Company plant here has gone on full time operations with a daily production of 170 cars scheduled to be attained by the end of this week, according to E. J. Diefenbach, assistant manager of the local plant. Two shifts of men will work day and night.

### PERFECT CIRCLE SALES

**Chicago,** May 26.—Replacement business of the Perfect Circle Company (piston rings) to date is within 1 per cent. of the like period a year ago, and the present trend is upward, according to Lothair Teetor, vice-president in charge of sales.

## METAL MARKET SEES STEEL TRADE QUIET

**New York, May 26.—"Gains and losses in various lines of steel activity have practically balanced," the American Metal Market states. There has been little weekly change in the total, but various fluctuations in individual districts.**

"Steel requirements of farm implement and refrigerator makers are undergoing usual seasonal decrease and will be quite light by July 1. Fabricated structural steel is looking up, with larger awards last week than usual and prospects of large awards this week. Ford Motor Company will buy steel this week for June deliveries, involving a much larger tonnage than was required for this month. Both Chrysler and Chevrolet schedules are expected to be off considerably for June.

"While steel producers have no precedent to encourage hope of an increase in demand occurring during the summer, they feel that if Congress does satisfactory work and adjourns there will be a very salutary influence."

## HARRY VESTED JOINS B. & J. TRAILER COMPANY

**Chicago,** May 26.—Harry Vested, pioneer in the trailer industry and for many years distributor of Trailmobile and Lapeer trailers, has joined the B. and J. Trailer Company. Vested will be in charge of national accounts and fleet owner distribution for B. and J.

The B. and J. Company recently announced new merchandising plans whereby body builders and truck equipment distributors may buy B. and J. trailer parts, assemble them in their own plant, sell the complete job under their own name or under the B. and J. name coupled with theirs—or buy B. and J. trailers completely assembled at low prices.

## BULK GASOLINE MARKET SHOWS IMPROVEMENT

**Chicago,** May 26.—With jobbers buying in anticipation of a good volume of business over the Memorial Day week-end and one major marketer reported to be taking gasoline at current levels, the movement in the bulk market has shown a noticeable increase.

Prices remain firm with the lower grade material, below 57 octane, still quoted 4¼ to 4½ cents a gallon.

### GOODYEAR MILLS SHUTDOWN

**Hartford,** May 26.—Goodyear Mills, Inc., subsidiary of Goodyear Tire & Rubber Company, has suspended production at its plant at Goodyear, Conn., which for the past eight years operated continuously day and night, employing 500 workers.

# SPARKS from DETROIT

**Ford Wires for Radio**

* * *

**Ditzler Record**

* * *

**Pity Poor Pete**

* * *

**Little Fires Cost Big**

* * *

*Chris Sinsabaugh—Detroit Editor*

FORD wiring his new bodies to permit of the installation of automobile radio receiving sets is expected to further stimulate a market which has shown a surprising growth in the past year. As I get it from the radio people, 1932 ought to see approximately three times the number of units sold than in 1931. And it might be mentioned that in 1931 the estimated sales of all makes totaled around 100,000. Prior to that year there were not more than 50,000 sets in use, it is said.

* * *

SO FAR AS Philco Transitone is concerned, the increased volume of sales this year is attributed to the reduction in price from $100 to $65. This reduction appealed particularly to those buying cars $1,000 and under, I am told by William Balderston, who contacts the automobile factories here for Philco Transitone.

Balderston estimates that from one-third to one-half of the installations this year are on the lower-priced cars and constantly increasing. With Ford coming into the picture, it is thought there will be a big jump in volume in this price class.

* * *

CHRYSLER, Dodge, De Soto, Plymouth, Studebaker, Rockne, Hudson-Essex, Nash and Reo are Philco customers, Balderston tells us, while Franklin also indorses Philco.

Automobile manufacturers take kindly to radio, he says, because it affords dealers an opportunity to secure additional revenue through the sale of sets, while dealers find they often can get prospects to take demonstrations in their cars just to see how radio works. When sold with the car, radio sets can be paid for on the installment plan, which is not available on straight radio sales.

* * *

JUST IMAGINE a concern that has been identified with the automobile industry for thirty years being able to boast that its sales for the month from March 15 to April 15, 1932, were greater than for any previous month in its history!

Yet that's the story told me by E. R. Hoag, president of the Ditzler Color Company of Detroit, as he cuts the birthday cake that marks the thirtieth anniversary of the company's formation.

* * *

DITZLER started selling body finishes to the carriage trade, so it was prepared for going after business when the automobile came along. It became an important factor with its Ditz-Lac colors and finishes. The Hoag interests bought out the Ditzlers in 1913, and in 1928 the stock of the Ditzler company was purchased by the Pittsburgh Plate Glass Company.

Since then there has been big developments, including the introduction of a complete line of synthetic enamels, marketed under the trade name of Ditzco. The factory site now covers eight acres, and at the present time a new administration building is in course of construction.

* * *

POOR PETE DE PAOLO! When the big race at Indianapolis is being run Monday, the event which is responsible for Pete's prominence in the automobile world, the winner of the classic and the holder of the race record will be on the Pacific Coast. It's dollars to doughnuts (the latter the kind mother used to make, not the low-pressure tires) that Pete will be listening to the radio Monday rather than ballyhooing for De Soto.

* * *

DE PAOLO is in charge of the De Soto expedition, which consists of a roadster hauling a trailer, on which is the miniature $25,000 reproduction of the De Soto factory. It's been out two months now visiting dealers, and reports are that on the average from two to three cars are sold in each of the smaller cities following De Paolo's visit.

* * *

AS THIS COLUMN was being written there was an interruption. The clanging of fire bells on 2d Boulevard caused it. Looking out of our Fisher Building windows, we saw what looked like all the fire apparatus in Detroit, including even hook and ladders, assembled around a bus pulled up at the curb. Firemen with axes climbed aboard the bus, and it was all over then. Some sort of a spark, not one generated by this column, however, had set a fire, and the department was called out.

You could have spit on the fire and put it out, yet the incident must have cost the city of Detroit around $100, that being the estimated cost of responding to an alarm with all that apparatus.

# Retail Salesmen—This Is Your Page

**This department is devoted to the interests of the retail sales division of the industry. Salesmen, this is your department. Automotive Daily News wants you to get something from this department that will help you in your work on the firing line. It wants you to pass on your own experiences, successes, failures to help your brother salesmen. Send in your story in the form of a letter, or even a postal card, and let us get it ready for publication. Your achievement or your mistake may help another salesman to make sales or avoid errors that cost you commissions.**

**Dealers read this page. Give us the benefit of your reactions on these problems that affect the work of your salesmen, the men on the firing line, the men who bring home the bacon or don't.**

## SOURCES OF LEADS AND PROSPECTS

The following is the conclusion of the article on "Sources of Leads and Prospects," which appeared in yesterday's Automotive Daily News. This article is from the course in automobile salesmanship compiled by the La Salle University Extension, in co-operation with the Chrysler Sales Corporation.

VI.—Many salesmen have found it very profitable to keep on friendly terms with the employees of such places of business where the latest news of car owners in the neighborhood is likely to be known and discussed.

First, however, these employees should be taken out for a regular demonstration ride in your car and "sold" just as though they were live prospects. This part of the procedure cannot be recommended too strongly, because without it the support of such men will be only half-hearted. You have to "sell" them if you expect them really to hilp you secure worthwhile prospects by their recommendations.

Many salesmen make it a practice to compensate such people for sales which are obtained through their co-operation. A five or a ten dollar bill will often work wonders, resulting in much good business for the salesman. The money should never be paid in advance, however, but should be promised in some such terms as:

"You give me a lead, and if I sell the prospect there'll be a five or a ten spot in it for you."

The same sort of tactics can be used with battery shop and gas-station men, and also with barber shop and drug store employees.

VII.—Many salesmen make it a practice to frequent at the noon hour industrial plants, engineering construction gang gatherings and other assemblies of well-paid workers.

They obtain the name of the boss, or the foreman in charge of a particular gang, and they cultivate his acquaintance. His recommendation, if he's in favor of your particular car, will often go a long way toward deciding one of his men to buv the automobile.

If his recommendation or tip results in a sale for you, a few cigars, a few dollars, or a small present of some sort will often agreeably surprise him to such an extent that he will be your stanch and steady booster from then on, and, due to the fact that he has contact with many men every day, he may develop some very profitable prospects for you.

Salesmen often find it effective to work in pairs, and, after establishing a good contact with superintendents, foremen, etc., to put on an informal show of their late models during the noon hour. The new Plymouth offers an exceptional opportunity for such an informal show or demonstration.

VIII.—One salesman in particular, and several other salesmen whom we have encountered, claim that the intelligent "working" of a large institution will result in more live leads than will any other source except present owners.

Certain it is that by getting in touch with the personnel man, or the office manager, or any department head or minor executive in a large institution, you will be very likely to uncover a number of present and future suspects and prospects, particularly if you have first sold the man whom you ask for leads. You may not sell him a car, but if you have convinced him of the quality of your car by means of a demonstration, he will readily give you his support and co-operation.

All the above sources of leads are useful as additions to the leads furnished you by your dealer. The smart salesman who is out to make all the money he can will use such leads to increase regular business.

Some salesmen develop prospects and open sales by inviting likely looking pedestrians, or those they recognize as possible "present" or "future" prospects, to ride with them when they are driving along the street without any passengers in the car. The opportunity to engage a prosperous-looking person in a chat about the good points of your car is particularly advantageous under these circumstances.

Besides the foregoing sources, there are miscellaneous lists which you can secure, such a list of club members, business association members, members of fraternal orders, trade unions, stock and bond holders, bank officials, large corporation officials, small business executives, municipal and county officials, officers and teachers in the public school system, etc. All such lists should be combed over every year for leads, which may in turn become "suspects," and then live prospects.

In addition to the above lists, your dealer will usually be able to furnish you with a city directory and an automobile registration list for your territory. The latter list is invaluable, because it shows not only the names and addresses of all present automobile owners, but also the make, the model, the year, the body type and the license number of their cars. From this list you can pick the suspects who have cars that are attractive from a trade-in standpoint.

## ONTARIO DEMANDS STANDARD TRUCK RATES

**Washington,** May 26.—At the request of the Ontario minister of highways, the Automobile Transport Association has framed a standard rate schedule for common carrier truck companies transporting freight over provincial highways that virtually is equal to rail tariffs, according to a report to the Commerce Department from Trade Commissioner L. A. France, Toronto. The proposed rates for short-haul distances (up to twenty-five miles) are approximately the same as the railroad schedule, but surcharges will increase the rates slightly when destinations are more than 125 miles from the shipping point. The surcharges depend largely upon the commodities transported and the distances involved, according to the Department of Commerce.

### BUDD WHEEL PRODUCING THREE-DIMENSIONAL WHEEL

The Budd Wheel plant has gone into active production on a new three-dimensional steel wheel, without a single corner or crevice, according to an announcement made today. This latest product is a design made from a single steel stamping. It is claimed to be as light as a wire wheel and to have great strength. Plant officials said that immediate production is now available in the full range of wheel sizes.

## CAR OPERATING COSTS DROP; TAX BURDENS GAIN

(Continued from Page 1)

sories and the cost per job of repair work have declined materially since 1929.

On the other hand, taxes collected on motor vehicles, as computed by the National Automobile Chamber of Commerce, increased from $928,155,062 in 1929 to $1,000,388,270 in 1930 and to $1,022,000,000 in 1931, although there was a decline in automobile registrations in 1931.

The tax payments per motor vehicle therefore were larger in 1931 than in 1930.

There have been increases in automobile insurance rates in many states in the last three years.

Most companies have discontinued the practice of granting reduced rates to owners who have had a favorable accident experience.

Assuming a decrease of 18 per cent. in the price of tires, of about 30 per cent. in the price of gasoline, a still greater drop in the wholesale price of lubricating oil, and a considerable decline in the charge for service parts and servicing, all of which are indicated by the data available, the view that there has been a material reduction in automobile operating costs appears to be substantiated.

## TRUCK FLEETS IN NEW SAFETY RECORD

**Boston, Mass., May 26.—Commercial vehicle drivers competing in the statewide commercial vehicle safety contest sponsored by the Governor's Committee on Street and Highway Safety produced the best driving record in the two and one-half years' history of the contest, the governor's committee reported today in announcing the results of the contests for the month of April.**

With 383 fleets composed of 12,657 vehicles competing during the month of April, and turning in a total of 2,959,638 hours on the road, the accident frequency rate dropped to 15 per 100,000 hours of operation, the lowest since the contests were inaugurated in January, 1930. The lowest previous rate was 19, established in both January and March this year, while for the purpose of comparison the highest was 33.02 in February, 1931, with the average for the three previous contests being well up in the 20's.

The number of accidents reported during the month of April was 457, which was 116 less than the month of January this year, the best previous month ever reported, when there were 573 accidents. At the same time the personal injury ratio dropped to one personal injury accident to every six property damage, as compared to one in seven and one in eight which have been reported so far this year.

To further make the April record the best in history, both the number of vehicles as separate units and the number o ffleets as a whole which went through the month without an accident were the highest in contest history. A total of 12,200 of the 12,657 vehicles, or 96.8 per cent., went through the month without an accident of any sort, while 250 of the fleets, or 65.2 per cent. of the total, also had clean slates for the month. The best previous records have been 95.8 per cent. accident-free vehicles for one month and 61.8 per cent. for fleets as a whole.

Worcester led the field, with three group-winning fleets during the month, on the basis of the fleet in each division and sub-division which has the lowest number of accidents per 100,000 hours of operation. In case of two fleets with no accidents for the month in the same division, the fleet with the greatest total hours of operation wins the award. The final winners for the entire twelve months of the contest ending December 30 next will be chosen on the same basis.

The fleet winners for April include Fisk Rubber Company of Chicopee Falls.

## 'J'EVER TRY TO SELL A SKELTON!

There isn't as much humor in selling things these days so we're treating you to the experience of Eric S. Hamilton, salesman for the Brooklyn, N. Y., Cadillac branch. Mr. Hamilton calls his story "The Funniest Deal I Neved Closed." He tells it in the Cadillac News.

Picture one of those languid summer days, midafternoon, not a cloud in the sky, when all nature seems to be taking a siesta. Two men on the floor first man to wait on customers who just must be at the beaches, and the second man to handle telephone calls. Being number two, I find one of the various reasons for leaving the floor that only a salesman can. I return in ten minutes to find my partner much excited.

"Get a seven-passenger sedan out right away and go down to Dr. M's office. The secretary just told me they want a car at once."

"Aw, quit yer kiddin'," says I. "It's too hot."

But being assured of the earnestness of my floor partner, I select an attractive V-8 sedan, and in due time present myself at the doctor's office.

Handing in my card to the slovenly looking maid who answered my ring, I was informed that the doctor was expecting me and would be right out.

"Mr. Hamilton?" It is the doctor greeting me. She elephants in, a massive woman of over 60 years, at least 280 pounds; black calico skirt just touching the floor, and measuring at least four yards round the bottom.

I'm afraid I showed my bewilderment, so the doctor launched at once into the purpose of her call. Being an officer in the American Posture League and scheduled to deliver a lecture the following week, she had decided to discuss for the benefit of all and sundry the incorrectness of automobile seat cushions.

First, the manufacturers were all wrong, the chair makers were all wrong, and I'd been sitting down improperly all my life. All this, and more too, I found out before the learned M. D. decided to look at the car itself. Heaving a sigh of relief and glad to be able to do a little talking myself, we descend in the elevator to the front door, where a new shining Cadillac is quickly becoming the admiration of the neighborhood.

The doctor herself opened the door to the car, and with some assistance from me got inside and invited me to sit beside her.

"Just as I thought," she said, "the back cushions are not the proper support for the body, the seat cushions are too long from the back to the front. See, they obstruct the free movement of the legs."

All this was accompanied by much prodding of my anatomy by the venerable old lady. And if you think it's any fun having a 60-year-old matriarch running her hand up and down your spine and under your posterior to find the deflection in your backbone on a hot day you may mave the next telephone call.

Defending the makers as best I could, only to call forth more adverse comment from the lady M. D., she finally decides that she has seen enough and steps out of the car. Glad the interview is over, and being the gallant gentleman still, I jump out to swing wide the great iron door that marks the entrance to her apartment office. Interpreting this act of mine to consider that I am still interested in her life work, I receive an insistent invitation to come in for further instruction with the aid of her skeleton (not the old lady's, of course, but one she had for demonstrating purposes).

Taking a chair directly opposite mine, facing me, my knees touching her dress, the old lady is handed a man's skeleton, consisting of skull, backbone, ribs, both arms, but no legs: all held together by an elaborate system of wires and spring. This cherished model the old lady installs on her lap, after the fashion of a ventriloquist with his doll, all the while the ribs are quivering, the arms swing loosely, and the head lolls from side to side in a most eerie manner. What a picture, and I've got to be serious!

Now begins a lecture in anatomy, and every once in so often the motherly old physician punctuates her remarks with pokes at my person with absolutely no regard for the proprieties. Releasing one hand thus to take a jab at me, Mr. Skeleton becomes all life and nearly succeeds in skidding off the old ladv's lap.

But has she exhausted her resources? Oh, no; there is yet a lecture in physiology.

"Mary, bring in the intestines."

Ye gods, isn't it enough for me to sit and admire my future state without carefully examining my entrails to see what goes on inside?

My thoughts in this direction are interrupted by Mary, who arrives with a well stuffed 10-pound muslin sugar bag, which is deposited at the feet of madam M. D.

With one hand carefully nurturing the only man she was ever in full possession of, the other reached down to shake out the contents of the sugar bag. Here they come, seventeen yards of brown intestines, a perfectly good yellow stomach, liver, alimentary canal, topped off with a vivid red tongue, all made from china silk, each in due proportion and relation to the other, joined together according to the All Wise plan.

Nothing that I have ever seen on the R. K. O. circuit will ever equal the comedy of trying to fit the various component parts of a man's interior into the proper location within that human frame. Resigning myself to my fate, I made such proper comment as I could from time to time until finally dismissed, when with much lightness of heart and many a chuckle I returned to the showroom from the funniest deal I never closed.

## N. Y. PONTIAC DISPLAYS AMERICAN INDIAN RELICS

**New York,** May 26.—At the Pontiac showroom, Broadway and 57th Street, Dr. Charles F. Brown, archeologist, is exhibiting a collection of 12,000, articles pertaining to American Indian history. Most of these articles were found in Northern Ohio and Southern Michigan, the stamping ground of Chief Pontiac. This collection, which is the result of Dr. Brown's thirty-four years' endeavors, has been pronounced by curators of the outstanding museums in the country as being the most complete and comprehensive of its kind ever exhibited.

The articles date back to man's earliest attempts to rise above his jungle companions. It is the most complete showing of the antiquity of the American Indian ever conceived. The exhibition was on view for three seasons at the Steel Pier in Atlantic City. Dr. Brown is in attendance at the exhibit every day and will be glad to explain the different relics to all those interested.

### NEW CADILLAC DISTRIBUTOR

**Hackensack, N. J.,** May 26.—W. H. Peters, Inc., 8 Passaic Street, has been appointed Cadillac-LaSalle distributor for Hackensack and Englewood. W. Harry Peters, president, has been associated with Cadillac-LaSalle in Bergen county for a number of years.

### SIMPSON IN CHARGE

**Passaic, N. J.,** May 26.—Announcement was made this week by the United States Rubber Company that sales activities of the tire and mechanical goods departments have been combined under the direction of L. M. Simpson. For the last three and a half years Mr. Simpson has been general manager of the tire department.

# Automotive Daily News

"Of, By and For the Entire Automotive Industry"

Published Every Day Except Sunday and Monday by
AUTOMOTIVE DAILY NEWS PUBLISHING CORPORATION
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## We Learn

ACCORDING to the old darky saying: "The sun do move." The human race learns, slowly, it is true, but perhaps that is the best sort of knowledge once it has sunk into the mass of humanity. And it is undoubtedly true that most of the learning is done in adversity. In times of prosperity we are too busy having fun to bother to learn anything.

As the long, weary length of the depression has dragged itself across the country, American industry and business have learned one lesson that will be of permanent value, if they remember it in more prosperous days to come. This outstanding lesson of the depression is the danger of permitting widespread unemployment to exist. Never before in the history of this country have 8,000,000 of our people been without employment to supply at least bare living costs. It speaks well for the patience of our working class that it has accepted the situation as philosophically as it has done. But if the army of the unemployed had been, or ever is, recruiting to a strength of, say, 15,000,000 or 16,000,000, the situation will not be accepted as it has been so far in the present depression.

This troublous period will pass, probably without much further addition to the sum of unemployment and suffering, but when more prosperous times shall have come back, it would be the part of wisdom for industry and business to formulate a definite and workable plan to obviate a recurrence of our present ills. Every man who wants to work should be able to do so. Whatever work is available should be divided up among would-be workers, and this should apply not only in depressions, but in boom times also.

No country can boast too loudly that lets 8 or 10 per cent. of its people, through no fault of their own, go for long periods without work enough to give them the necessities of life. The present state of affairs is a blot on our national escutcheon, and if we sit supinely through the next period of prosperity without taking steps to prevent a repetition of the evils we are enduring, we can scarcely blame the vast inarticulate mass of our population if it follows some loud-mouthed leader into trouble. And the trouble will not fall entirely on the mass of the population.

Gerard Swope many months ago offered a concrete suggestion for dealing with this very problem. The plan may have had weaknesses, but if it had, in heaven's name, let some other leader offer a better one. There comes finally an end of supine patience for even the most submerged stratum of any country's population. The old regime in France found the truth of that in 1793, the Russian aristocrats have just got through learning it. In this country, we can mitigate the hardship of such a lesson if we will only take heed in time.

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ONE of the almost endless deficits of the United States government is caused by its operation of the Post Office Department.

For many years the Post Office Department has been telling us that one of the items that has much to do with its deficit is second-class mail. This consists largely of publications, educational or otherwise. The department has intimated on more than one occasion that if the whole second-class entry list were done away with, things would be very much pleasanter on this rather imperfect earth.

We are wondering whether the Post Office Department could not lessen the cost of carrying second-class mail by employing motor trucks in its delivery instead of railways. Obviously it would not be possible economically to deliver second-class mail from coast to coast by motor truck, but would it not be cheaper to send such matter from cities one, two or perhaps three hundred miles apart by motor truck? As it now stands, second-class mail must be carried from post office to railway station by truck, be transferred to the train, and then be picked up again by motor truck and delivered to the post office building in the city where it is to be delivered. Surely this transshipment must be costly. Would not a direct delivery by motor truck between cities and towns within zones be cheaper and more expeditious?

We pause for a reply.

## *In This Corner....*

**Opinions, suggestions, complaints, criticisms, grievances or what have you. Open to every one to say anything, anyhow, any time. The communications printed in this department represent the ideas and opinions of our readers. They are not necessarily ours. If you have something to say on any phase of automotive activity, wholesale, retail or abusive, let us hear from you and we will tell the world.**

## Favors One Price for All Sections of the Country

**Automotive Daily News: In your May 5 issue of the News there is a discussion on dealers favoring fewer models.**

If we had one of each chassis and body style, as well as one of each of the paint jobs and wheel styles, we would have in our stock 128 cars. When we first started in business we had one chassis model and five different body styles. We sold more cars than we are selling today and our profits were larger.

The plan of advertising delivered prices is a good one, but why not carry it a step farther and have a universal delivered price throughout the United States, the factory carrying the freight and delivery expense into the cost of production?

This would eliminate the bootlegging of new cars and entriely stop the driving in of used cars. The only profit the bootlegger has to work on is the freight differential.

Some smart manufacturer is going to do just exactly what the refrigerator people are doing, have one price for the dealers of their products throughout the United States.

**LYMAN P. CLARK, Pres.**
**Glendale Motor Car Company, Ltd.**
**Glendale, Cal.**

## MOTOR PRODUCTION ACTIVITY

**By RAY B. PRESCOTT,**
**Marketing Counselor**

With the closing of the week of May 21 and a slight decrease being shown in production activity, it becomes increasingly evident that the sales shows have contributed very little to the industry for the efforts expended. It means that the second big month of demand for cars is almost through, with no visible increase in sales being shown. What that may mean is that the industry will only produce around a million and a half cars and trucks this year. This will be the lowest of the past ten years.

The index for the week of May 21 reached 54, one point decline from the previous week, which is 23 per cent. behind the same week of a year ago, when the index was 70.

### LIVESTOCK HAULAGE BY TRUCK INCREASES

**Carbondale, Ill.,** May 26.—"According to the records of receipts of livestock at Central Western stock markets in April this year, 73 per cent. of the hogs received were carried from the farm to the market place by motor truck and 27 per cent. by rail," said C. D. Morris of the Western railways' committee on public relations, in an address here.

### ERSKINE OF STUDEBAKER LOSES BIG TAX SUIT

**Washington,** May 26.—Albert R. Erskine of South Bend, Ind., president of the Studebaker Corporation, lost an appeal in the United States Board of Tax Appeals in which he sought to avoid the payment of $732,008 additional income taxes for the years 1923-1926.

Adding $3,104,029 to Mr. Erskine's income because of compensation received by him in the form of stock in the Studebaker Corporation, the internal revenue commissioner had levied the additional assessment of $732,008. In all particulars the tax board upheld the Internal Revenue Bureau.

**CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS**

## STUDEBAKER ADDS NEW TRUCK OUTLETS

**South Bend, Ind., May 26.—The following new truck dealers have been announced by the S. P. A. Corporation:**

Chester Garage, Chester, N. Y.; Glenn E. Thomas Company, Long Beach, Cal.; K. Suzuki, Los Angeles, Cal.; Buckham Motors, Inc., Mount Vernon, Ill.; Bennedum's Garage, Callicoon, N. Y.; Elmer Watkins, Cambridge, Neb.; Jesse D. Pusey, Avondale, Pa.; Brad Swift, North Cambridge, Mass.; John D. Clarkson, Inc., San Mateo, Cal.; Ross Garage, Redwood City, Cal.; Charles T. Remmel, Healdsburg, Cal.; Stony Point Garage, Stony Point, N. Y., and B-N Motor Company, Raleigh, N. C.

### REPUBLIC STEEL SHEET MILLS RESUME WORK

**Youngstown,** May 26.—Republic Steel Company has resumed operations at six of its sheet mills at the Nile, O., plant after several day's shutdown.

## COMING EVENTS

**MAY**

23-28—**Chicago, Ill.** Radio Manufacturers Association, meeting. Hotel Sherman.

**JUNE**

1- 3—**Tulsa, Okla.** American Petroleum Institute, mid-year meeting, Mayo Hotel.
8-11—**State College, Pa.** American Society of Mechanical Engineers, National Oil and Gas Meeting.
12-17—**White Sulphur Springs, W. Va.** Society of Automotive Engineers, summer meeting.
20-24—**Chicago, Ill.** Motor and Equipment Wholesalers Association, Edgewater Beach Hotel, summer conference.
20-24—**Atlantic City, N. J.** American Society for Testing Materials, annual meeting, Chalfonte-Haddon Hall.

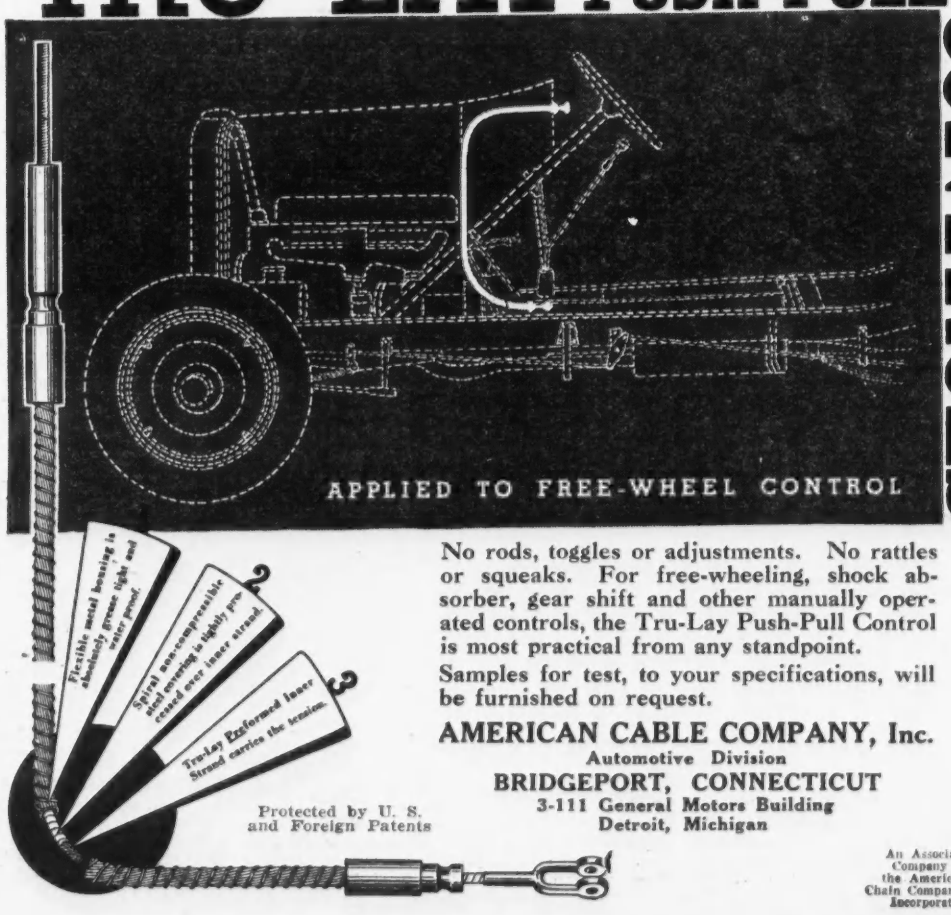
**JULY**

3—**France.** Grand Prix Automobile Race.
5- 9—**Southampton, England.** Commercial Car Show.
9-10—**Belgium.** Grand Prix Automobile Race.
17—**Germany.** Grand Prix Automobile Race.
20-22—**Llandrindod, Wales.** Commercial Car Show.

**OCTOBER**

3- 7—**Washington, D. C.** National Safety Council, meeting.
3- 7—**Buffalo, N. Y.** National Metal Exposition, 174th Regiment Armory. W. H. Eisenman, 7016 Euclid Ave., Cleveland, director.
3- 7—**Buffalo, N. Y.** National Metal Congress. Sponsored by American Society for Steel Treating, with cooperation of American Society of Mechanical Engineers, Institute of Metals and Iron and Steel Divisions of American Institute of Mining and Metallurgical Engineers, American Welding Society, Wire Association.
13-22—**London, England.** Olympia Show.


TRU•LAY PUSH•PULL CONTROLS


APPLIED TO FREE-WHEEL CONTROL
Flexible metal housing is absolutely grease tight and water proof.
Spiral non-compressible steel covering is tightly pressed over inner strand.
Tru-Lay Ezeformed inner strand carries the tension.
1
2
3

No rods, toggles or adjustments. No rattles or squeaks. For free-wheeling, shock absorber, gear shift and other manually operated controls, the Tru-Lay Push-Pull Control is most practical from any standpoint.

Samples for test, to your specifications, will be furnished on request.

**AMERICAN CABLE COMPANY, Inc.**
Automotive Division
**BRIDGEPORT, CONNECTICUT**
3-111 General Motors Building
Detroit, Michigan

Protected by U. S. and Foreign Patents

An Associate Company of the American Chain Company, Incorporated

ACCO

# 87,598 PROUD PARENTS PROFFERED PICTURES OF PROGENY

**WHAT:** Contest for photographs of New York's most beautiful children, conducted by The News, New York's Picture Newspaper. Three capital prizes totaling $1,450, and $25 for each picture published in the Sunday News Rotogravure.

**WHEN:** Twelve weeks period, running from December 1931 to March 1932.

**WHAT OF IT:** Well, 87,598 photographs are a lot of pictures, a whale of a lot. They made headaches for the judges, and about $250,000 worth of business for local portrait photographers. They constituted a record response for a promotion sponsored by a single newspaper. They represented eighty-seven thousand homes, with children—equivalent to a whole city in the 350,000 population bracket; and a city well above the national average in income and expenditures. And they showed an amazingly varied audience, coming from families with millions and families with mills—proving that parental pride and newspaper preferences know no income bounds, no social distinctions. Finally they indicate an amazingly good advertising medium! It took time, effort and expense to enter this contest, required a strong reader interest which The News supplied. Phenomenal as the response was, the eighty-seven thousand entries represent less than *five percent* of the 1,800,000 Sunday News circulation.

**MORAL:** If you judge an automobile medium by the amount of publicity you get from it, by the size of its Sunday automobile sections, by the amount of automotive linage carried, or because its Automobile Editor is a good fellow—this Beautiful Child Contest won't mean much to you. But if you know what constitutes a real advertising medium—it will. The Contest response is evidence of a number of valuable traits in a medium. It shows a strong reader interest, thorough reading from cover to cover, and considerable confidence in the paper on the part of the readers. And it also indicates an amazingly varied family audience, parents proud of their children, ambitious and anxious to give them every advantage;

*Joyce Muriel Goldsborough, ten years old, winner of the first prize of $1,000 in The News Beautiful Child Contest.*

families which need transportation and are the most desirable and most consistent prospect. And when you realize that these 87,000 families are only a slight cross section of the whole News circulation—it indicates a remarkably good market for automobiles, from Chevrolets to Cadillacs, from De Sotos to Dusenbergs; and a market easily accessible by a single high-efficiency, low-cost medium.

If you want to do big things in a big way in America's biggest and best market, trust your advertising expenditures to a big medium that does big things for itself as well as for its customers! Now is a good time to start!

**• THE NEWS**

**NEW YORK'S PICTURE NEWSPAPER**

220 EAST 42nd STREET, NEW YORK CITY

Tribune Tower, Chicago + Kohl Bldg., San Francisco

**HOFFMAN CALLS MEETING**

**Trenton, May 26.**—Harold G. Hoffman, New Jersey motor vehicle commissioner, has called the semi-annual meeting of motor vehicle agents of the state for Saturday, June 4, in the Assembly chambers, State House, Trenton, it was announced today.


They make the selling job easier, whether it's trucks or buses. . . .

In sturdiness, efficiency, and accessibility they answer all questions about axles. . . .

WISCONSIN AXLES

WISCONSIN AXLE CO.
Oshkosh Wisconsin


# Ford Profit on Model A Estimated at $11,250,459

(Continued from Page 1)

the Model A the loss of more than $53,000,000 incurred in 1931, during a considerable part of which sales of the four-cylinder model were sinking until they finally almost ceased.

Automotive executives here and in Detroit point out that much of the loss incurred in 1931 was money spent in developing and getting ready for the market the new eight-cylinder models, as well as the revamped fours. They suggest that it is unfair to charge off the losses of both 1927 and 1931 to the Model A.

In trying to estimate exactly what part the Model A played in Ford finances, it would probably be fair to charge off the losses of 1927, when the car was being developed for the market, and those of 1928, when it was selling and to credit it with the profits of 1929 and 1930, when it was selling at its best. By looking at the table presented below our readers will find that the two figures are not so far apart, with an actual profit showing for the Model A. The loss years of 1927 and 1928 show a total of $115,008,225. The profit years of 1929 and 1930 show a total of $126,258,684. This gives the Model A a credit balance of $11,250,459 for its actual sales life of four years.

There follows the Ford balance sheet covering four years and the profit and loss summary from 1926 to 1931 inclusive:

Balance sheet of Ford Motor Company, submitted to Massachisetts commissioner of corporations, as of December 31, 1931, compares as follows:

**ASSETS**

| | 1931 | 1930 | 1929 | 1928 |
|---|---|---|---|---|
| Real estate | $158,387,688 | $152,636,931 | $154,320,351 | $156,239,207 |
| Mach. eq. etc. | 124,601,735 | 131,884,056 | 138,928,264 | 152,921,366 |
| Inventory | 64,884,691 | 112,482,374 | 118,883,082 | 102,773,704 |
| *Cash, etc. | 372,483,105 | 382,898,719 | 346,937,496 | 275,926,656 |
| Def charges | 1,972,496 | 2,062,491 | 2,008,803 | 1,048,415 |
| Total | $722,329,715 | $781,964,571 | $761,077,996 | $688,909,348 |

**LIABILITIES**

| | | | | |
|---|---|---|---|---|
| Capital stock | $17,264,500 | $17,264,500 | $17,264,500 | $17,264,500 |
| Accts. pay, etc. | 38,824,298 | 45,315,919 | 73,056,929 | 83,900,629 |
| Reserves | 10,938,670 | 10,495,905 | 6,329,143 | 5,114,656 |
| P. & L. surp. | 655,302,247 | 708,888,247 | 664,427,424 | 582,629,563 |
| Total | $722,329,715 | $781,964,571 | $761,077,996 | $688,909,348 |

*Includes notes and accounts receivable, securities, patent rights, etc.

Changes in the profit and loss account as reported to the Massachusetts commissioner of corporations are shown in the following table covering the past six years. There is also shown the indicated profit or loss and earnings per share for the period, as revealed by comparison of the profit and loss items, but exclusive of dividends withdrawn from the business, as the company does not make public the dividends paid on its stock.

| Year Ended | P. & L. Surplus | Ind. Profit | Per Sh. |
|---|---|---|---|
| Dec. 31, 1931.. | $655,302,247 | *$53,586,000 | Nil |
| Dec. 31, 1930.. | 708,888,247 | 44,460,823 | $257 |
| Dec. 31, 1929.. | 664,427,424 | 81,797,861 | 473 |
| Dec. 31, 1928.. | 582,629,563 | *72,221,498 | Nil |
| Dec. 31, 1927.. | 654,851,061 | *42,786,727 | Nil |
| Dec. 31, 1926.. | 697,637,788 | 75,270,895 | 436 |

*Loss.

# MOTOR INDUSTRY IS BEST MARKET NOW FOR PIG IRON

(Continued from Page 1)

England last week were under 500 tons.

About 3,000 tons of Dutch pig iron is at piers in Bridgeport, awaiting sale and shipment. A larger proportion of iron available in New England is being transported by truck. Pig iron prices in the East are unchanged and are somewhat difficult to define exactly because of lack of sufficient business with which to test them.

# AUTOMOTIVE PLANTS INCREASE WORKERS

(Continued from Page 1)

curred in New York automobile assembling and automobile accessory plants, so far as the Buffalo industrial district was concerned. Part time operations continue in the automobile industry in the Albany industrial district.

Several hundred workers were recently given employment at an automobile assembly plant in St. Paul, Minn. The note of optimism was sounded again at Norfolk, Va., where increased activity in an automobile assembling plant followed a general and noticeable improvement in the industrial employment situation.

In the Jersey City industrial district restricted operations continued in automobile and battery plants. But increased production and forces were reported at Trenton, N. J., at plants manufacturing rubber floor mats for automobiles. Tire and tube factories in the same city operated on a reduced schedule.

Curtailed schedules and part-time employment prevailed in automobile and automobile-accessory plants throughout Indiana, including factories at Evansville, Muncie, South Bend, Anderson and Lafayette. Below normal employment also obtained in the automotive industry in Iowa, the automobile-assembly plant at Des Moines operating on part time.

Tire factories in Connecticut continued operations on a satisfactory basis, but a Bridgeport plant manufacturing automobile hardware curtailed its forces.

The tire industry in Ohio continued on a curtailed schedule, Akron plants showing little improvement and some of the rubber-reclaiming plants remaining closed.

Highway work is being prosecuted vigorously in a number states. New contracts for roadwork were awarded in Arizona and should furnish considerable additional employment. In California the construction of highways and bridges has extended to many quarters of the state, absorbing numerous workers. New road contracts in Idaho are also bringing about a steady increase of employment. In Kentucky highway work including bridge construction is giving employment to more than 5,000 men. Bridge and highway work in Kansas has been resumed on contracts amounting to around two million dollars.

**CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS**

# *Cumulative New Commercial Car Registration Statistics, April, 1932*

**Returns for today: Alabama, Arizona, California, Connecticut, Iowa, Kansas, Kentucky, Louisiana, Massachusetts, Nevada, New Jersey, Ohio, Texas and Vermont.**

**Figures in this table are from R. L. Polk & Co. of Detroit, with the exception of Illinois, which are supplied by the Robinson Advertising Service, Springfield, Ill., and New Jersey, which are furnished by the New Jersey Motor List Co., New Car Division, Trenton, N. J. Metropolitan district figures compiled by Sherlock & Arnold are included in New York state total. Readers desiring county, city or town lists, or lists of owners in any given section, may obtain these by addressing any of these three companies. Some of this data has been published previously, but it is given here complete for the convenience of our subscribers. Commercial car figures do not include busses.**

In this table, 40 states and the District of Columbia. **Comparative figures for April, 1931, will be found on Page 7.**

| States | Autocar | Brockway | Chevrolet | Diamond-T | Dodge | Federal | Ford | G. M. C. | Indiana | International | La France Republic | Mack | Pierce-Arrow | Reo | Sterling | Stewart | Studebaker | White | Willys-Overland | Miscellaneous | Totals | States |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alabama | | | 108 | 1 | 7 | | 29 | 7 | | 12 | | | | | | | 7 | | | 1 | 172 | Alabama |
| Arizona | | | 16 | | 1 | | 8 | | | 2 | | | | 1 | | 1 | 2 | | | 3 | 34 | Arizona |
| Arkansas | | | 53 | | 3 | | 52 | 2 | | 8 | | | | | | | | 1 | | 1 | 120 | Arkansas |
| California | 6 | | 304 | 5 | 68 | 3 | 292 | 37 | | 53 | 3 | 9 | 1 | 32 | 4 | 2 | 25 | 11 | 1 | 66 | 922 | California |
| Connecticut | 1 | 4 | 150 | 3 | 11 | 7 | 80 | 9 | | 28 | 1 | 6 | | 15 | | 5 | 5 | 4 | 4 | 4 | 337 | Connecticut |
| Delaware | 1 | | 27 | | | | 15 | 3 | | 8 | | | | 2 | | | 3 | | | 3 | 65 | Delaware |
| Florida | | | 74 | | | | 56 | 2 | | 7 | | | | 1 | | | 1 | 1 | | 8 | 150 | Florida |
| Idaho | | | 37 | | 2 | | 28 | 3 | | 13 | | | | 2 | | | | | | | 85 | Idaho |
| Illinois | 1 | | 281 | 28 | 37 | 3 | 194 | 35 | 1 | 100 | 2 | 27 | | 7 | 4 | 1 | 14 | 10 | 7 | 29 | 781 | Illinois |
| Indiana | | | 193 | 8 | 33 | 2 | 130 | 18 | 19 | 54 | | | 1 | 5 | | 2 | 24 | | 6 | 7 | 502 | Indiana |
| Iowa | | | 240 | 10 | 20 | 3 | 163 | 14 | 3 | 67 | | 2 | | 19 | | | 9 | | 2 | 2 | 554 | Iowa |
| Kansas | | | 118 | 1 | 11 | 2 | 63 | 11 | 2 | 17 | | | | 4 | | | 4 | 1 | 4 | 2 | 240 | Kansas |
| Kentucky | | | 87 | 2 | 7 | 1 | 48 | 14 | | 21 | | 6 | | 4 | | 2 | 3 | 1 | 4 | 3 | 203 | Kentucky |
| Louisiana | | | 84 | | 8 | | 66 | 6 | | 25 | | 1 | | | | | 3 | | | | 193 | Louisiana |
| Maryland | 6 | 4 | 124 | 3 | 8 | 6 | 50 | 15 | | 30 | | 5 | | 8 | | | 3 | | 1 | 2 | 265 | Maryland |
| Massachusetts | 12 | 11 | 263 | 8 | 39 | 8 | 318 | 65 | 1 | 57 | 1 | 8 | | 31 | 2 | 8 | 12 | 10 | 2 | 13 | 869 | Mass. |
| Michigan | | | 248 | 4 | 41 | 14 | 170 | 21 | 1 | 47 | 1 | | | 18 | | | 14 | | 3 | 13 | 595 | Michigan |
| Minnesota | | | 185 | 15 | 28 | 6 | 95 | 8 | | 63 | 1 | 3 | | 12 | 1 | | 14 | 5 | 7 | 9 | 452 | Minnesota |
| Missouri | 3 | | 334 | 12 | 28 | 3 | 168 | 22 | 4 | 81 | 2 | 2 | | 15 | | | 8 | 1 | 6 | 12 | 701 | Missouri |
| Montana | | | 36 | | 4 | | 49 | 1 | | 25 | | | | 4 | | | 1 | | 1 | | 121 | Montana |
| Nebraska | | | 107 | 1 | 7 | | 77 | 4 | | 37 | | 4 | | 6 | | | 5 | 1 | 4 | 3 | 256 | Nebraska |
| Nevada | | | 12 | | 3 | | 26 | 2 | | 5 | | 3 | | 1 | | | 2 | | | | 54 | Nevada |
| New Hamp. | | | 63 | 9 | 2 | 1 | 50 | 6 | | 10 | | | | 8 | | 2 | 2 | | 2 | | 155 | New Hamp. |
| New Jersey | 11 | 12 | 273 | 22 | 55 | 7 | 152 | 41 | 1 | 46 | 1 | 13 | | 20 | | 7 | 13 | 32 | 4 | 25 | 735 | New Jersey |
| New Mexico | | | 28 | 1 | 3 | | 22 | | 1 | 11 | | | | | | | | | | | 66 | N. Mexico |
| Nor. Carolina | | | 153 | | 13 | | 85 | 12 | | 27 | 4 | | | | | | 1 | | | 9 | 304 | North Car. |
| North Dakota | | | 37 | | 3 | | 21 | 1 | | 18 | | | | | | | 3 | | 1 | | 84 | North Dak. |
| Ohio | 12 | | 283 | 3 | 50 | 3 | 204 | 27 | 12 | 105 | 3 | 8 | | 17 | 2 | 3 | 11 | 12 | 15 | 31 | 801 | Ohio |
| Oklahoma | | | 123 | | 7 | 1 | 73 | 9 | 1 | 22 | | | | | | | 1 | | 3 | 3 | 243 | Oklahoma |
| Pennsylvania | 15 | 12 | 518 | 8 | 134 | 17 | 298 | 58 | 3 | 184 | 2 | 20 | | 21 | 1 | 29 | 33 | 13 | 21 | 40 | 1427 | Penna. |
| Rhode Island | 1 | 4 | 41 | | 4 | 19 | 56 | 11 | | 12 | 1 | 1 | 2 | 3 | 3 | | 1 | 1 | | | 160 | Rhode Isl. |
| So. Carolina | | | 72 | 2 | 5 | 2 | 40 | 5 | | 10 | | | | | | | 2 | | | | 138 | S. Carolina |
| Sou. Dakota | | | 29 | | 3 | | 10 | 2 | | 19 | | | | | | | 4 | | | | 67 | S. Dakota |
| Texas | | | 320 | 5 | 12 | 1 | 176 | 13 | | 82 | | | | 3 | | | 8 | 5 | 1 | 10 | 636 | Texas |
| Utah | | | 30 | | | | 24 | 4 | | 7 | | | | 1 | | | 3 | 2 | | | 71 | Utah |
| Vermont | | | 41 | 1 | 3 | | 32 | 2 | | 17 | | | | 4 | | | | | 5 | 1 | 106 | Vermont |
| Virginia | | | 169 | 2 | 14 | 2 | 59 | 35 | | 29 | 1 | 2 | | 8 | | 2 | 1 | 2 | 1 | 9 | 336 | Virginia |
| Washington | | | 81 | 10 | 6 | 1 | 55 | 17 | | 29 | | 1 | | 1 | | | 7 | 2 | 1 | 7 | 218 | Wash'ton |
| West Virginia | | | 124 | | 16 | | 47 | 13 | 2 | 16 | 1 | | | 7 | | | | | 4 | 2 | 232 | W. Virginia |
| Wisconsin | 1 | | 202 | 16 | 18 | 1 | 90 | 14 | | 48 | | 2 | | 11 | 1 | 2 | 13 | 3 | 7 | 15 | 444 | Wisconsin |
| Dist. of Col. | 1 | | 59 | 5 | 4 | | 26 | 22 | | 3 | | 1 | | 4 | | | 2 | | | 2 | 129 | Dist. of Col. |
| Totals | 71 | 47 | 5727 | 185 | 718 | 113 | 3697 | 594 | 51 | 1455 | 24 | 124 | 4 | 295 | 18 | 66 | 264 | 118 | 117 | 335 | 14023 | Totals |

# Trade Association News

## Marine Division Met. S.A.E. Holds First Meeting

**New York, May 26.—The first meeting of the newly formed marine division of the Metropolitan Section, Society of Automotive Engineers, was held Tuesday at the Park Central Hotel. It was preceded by a dinner at which other organizations interested in the marine field participated.**

The importance of the marine engine industry in this section was brought out by William E. John, who presided at the meeting. He stated that over 35,000 numbered boats, exclusive of outboard motorboats, yachts under sixteen tons, and small commercial vessels, operated in these waters. The total of numbered boats in the United States is approximately 254,000. The widespread interest in the field is evidenced by the number of regattas to be held in 1932. These total 4.200, in which over 21,000 drivers will take part.

Papers were presented by J. C. McCormack, vice-president, Godward Gas Generator, Inc., entitled "Fuelizer Survey. Alfred Schwartz, consulting engineer, Fuel Oil Motor Corporation, whose subject was "Fuel Oil Is the Fuel for Marine Engines," and Julius Kuttner, consulting engineer, on the subject of "Full Proof Motor Boat with Foolproof Diesel Engines."

Mr. Schwartz discussed a newly developed method of converting existing engines to the use of fuel oil. By the method employed, a fuel and air mixture is drawn in and compressed in the cylinder, after which compressed air is introduced, which, it is claimed, stratifies the mixture from the air injected under pressure. When ignition of the original mixture occurs, a large amount of turbulence is produced, which results in more effectively burning the combined mixture.

Slides were shown of the various types of engines which had been converted to the new system. Because of the extremely high compression ratio permitted, as high as 9 to 1, almost double the amount of power was made possible in one instance of a two-cylinder engine and relatively high increases in other engines which were operated at the same comparative speeds. Mean effective pressures as high at 181 pounds per square inch were obtained.

Another claim for this method of delayed air injection is the possibility of realizing volumetric efficiencies as high as 150 per cent. as compared with normal operation, and this without supercharging. It is claimed that commercial engines using this system, besides realizing increased power, effect savings of fuel amounting to 25 per cent., which, when converted into monetary savings, is equal to about 80 per cent. because of the relative cost of gasoline and fuel oil. Partial loads, Mr. Schwartz stated, could be operated as economically as full loads. The cost of conversion amounts to from $3 to $5 per horse power.

Mr. Kuttner used a number of slides to illustrate various types of injection systems, most of which were designated as unsatisfactory because of the complication of the operating mechanism on each cylinder which were required for injection. He advocated a more complicated cylinderhead design with a simple casting included as a heater with a simple injection device which could be made up of standard parts.

Mr. McCormack, in his paper, reviewed the development of fuel systems for the past sixty years beginning with the Brayton engine. In this period many combinations of air and oil injection, preheating and mixture dilution had been tried. Many present-day systems are adaptations of methods used over thirty year sago.

The meeting was attended by approximately 250 members of the several participating societies and associations and an interesting discussion followed the meeting.

## Chicago A. T. A. Broadens Activity; To Meet June 13

**Chicago, May 26.—Noted for many pioneering movements since it was founded, twenty-seven years ago, the Chicago Automobile Trade Association has just taken the initiative for organizations of its kind in a new direction, through the appointment by President R. G. Tiffany of twenty-two committees to secure "greater active interest in, and participation by, its members, and closer co-operation by all divisions of the industry." It is further stated that the program just launched is "far-reaching in its effect."**

The actual plan for securing the desired results was presented by H. A. Wehmeier, vice-president of the association, and vice-president and general manager of Community Motors, Inc., Pontiac distributor. Upon approval by the C. A. T. A. at a meeting, President Tiffany appointed chairmen of the committees and gave them authority to select the other members.

Mr. Tiffany, who is Cadillac branch manager, heads two committees, those on labor and rackets, and insurance. Mr. Wehmeier is chairman of the executive committee. Other chairmen are as follows:

K. C. Wettstone, Packard, advertising; W. E. Butler, Hudson-Essex, allied industries; Thomas F. Hay, Reo, entertainment; Thomas J. Hay, Reo, finance; L. J. Brady, Marmon, ethics; C. E. Gambill, Hupmobile, finance companies; R. H. Keeling, Studebaker, junking; W. J. Boone, Stutz, good roads; Lafayette Markle, Oldsmobile, legislation; M. J. Lanahan, Dodge, membership; P. C. Gartley, Willys-Overland, meetings and community meetings; George H. Bird, Graham, national shows; Arthur L. Walsh, Franklin, outings; L. F. Johnston, Chrysler, publicity; Richard Wolfe, Auburn-Cord, service; H. T. Hollingshead, Nash, traffic; J. P. Roberts, Lincoln, salon; E. J. Murnane, Pierce-Arrow, World's Fair, and Fred M. Greene, Seiberling, tire division.

June 13 has been set as the date of the associations' twenty-seventh annual meeting at the Lake Shore Athletic Club, starting with a dinner at 6.30 p. m. Election of directors will be an order of business, as will reports on the organization's activities during the past twelve months. An entertainment program, including a speaker, is being arranged for.

A recapitulation of the many bills affecting motor vehicle owners and merchants, introduced at the recent legislative sessions, shows that only three of the automotive measures were enacted. Of these, Senate bill 20, providing for an income tax, has already been declared unconstitutional by the lower court and is being appealed to the Supreme Court. Senate bill 135, to become effective January 1, 1933, lowers the license fee on trucks having 8,000 to 10,000 pounds gross weight from $35 to $24. House bills 1 and 5 provide that unemployment relief money be raised by a state bond issue upon approval by popular vote next November. If approved, the money raised by the bond issue would be used by counties to repay the state for monetary aid given out of the state's gasoline tax fund; if defeated, the money due from counties will be repaid to the state by a general tax added to the state rate.

### MASSACHUSETTS GAS TAX TO CONTINUE AT 3 CENTS

**Boston,** May 26.—Gov. Ely has signed the bill continuing until 1936 the law imposing an additional 1-cent gasoline tax now in force.

The total tax will thus continue to be 3 cents a gallon.

### APPROVE TRAFFIC PLAN

**Trenton,** May 26.—Police chiefs from every section of New Jersey have voted their approval of the state Traffic Commission's plan to designate a new system of "through" streets with "stop-street" signs at only those intersections outside of congested areas. Instead of the "stop-street" signs that heretofore have stood at intersections of busy thoroughfares in thickly populated areas the police chiefs agreed "slow" signs should be used.

YEARS OF PERFORMANCE PROVE WHAT BROCKWAY TRUCKS WILL DO

For more than twenty-three years—with thousands of owners—BROCKWAY Trucks have proved what they will do—demonstrated their ability, economy and lasting qualities in every line of business. What BROCKWAY Trucks are doing for others they will do for you.

BROCKWAY MOTOR TRUCK CORPORATION

*Main Office and Factory*
CORTLAND - - NEW YORK

## *Cumulative New Commercial Car Registration Statistics, April, 1931*

**This table is repeated for comparative purposes only. Figures for April, 1932, will be found on Page 6.**

| States | Autocar | Brockway | Chevrolet | Diamond-T | Dodge | Federal | Ford | G. M. C. | Indiana | International | La France Republic | Mack | Pierce-Arrow | Reo | Sterling | Stewart | Studebaker | White | Willys-Overland | Miscellaneous | Totals | States |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alabama, 1931 | | | 183 | | 2 | 3 | 194 | 10 | | 43 | | | | 2 | | | 1 | 1 | | 1 | 440 | Alabama, '31 |
| Arizona, 1931 | | | 29 | | 1 | | 73 | | | 3 | | | | 1 | | | | | | | 107 | Arizona, 1931 |
| Arkansas, '31 | | 1 | 98 | | 12 | | 146 | 2 | | 48 | | | | 5 | | | 1 | 2 | | | 315 | Ark., 1931 |
| Calif., 1931 | 10 | 2 | 464 | 3 | 103 | 9 | 1270 | 23 | | 63 | 2 | 11 | | 39 | 15 | 7 | 27 | 22 | 3 | 64 | 2137 | Calif., 1931 |
| Conn., 1931 | 3 | 7 | 168 | 4 | 45 | 9 | 337 | 14 | | 25 | 1 | 17 | | 23 | 1 | 10 | 10 | 4 | 7 | 9 | 694 | Conn., 1931 |
| Delaware, '31 | 4 | | 35 | | 1 | | 78 | | | 9 | | 2 | | 1 | | 1 | 2 | | | | 133 | Del., 1931 |
| Florida, 1931 | | | 144 | | 6 | | 259 | 2 | | 13 | | | | 2 | | | | 1 | | 1 | 428 | Florida, 1931 |
| Idaho, 1931 | | | 56 | | 10 | | 74 | 1 | | 8 | | 1 | | 4 | | | 1 | 2 | 2 | 2 | 161 | Idaho, 1931 |
| Illinois, 1931 | 2 | 10 | 513 | 33 | 77 | 16 | 816 | 23 | | 121 | 1 | 10 | | 7 | 8 | 3 | 32 | 1 | 23 | 79 | 1775 | Illinois, 1931 |
| Indiana, 1931 | | 11 | 404 | 5 | 65 | 1 | 518 | 35 | | 96 | | 2 | | 18 | 3 | 9 | 17 | 1 | 24 | 20 | 1229 | Indiana, '31 |
| Iowa, 1931 | | 12 | 426 | 5 | 47 | 2 | 473 | 8 | | 131 | | 1 | | 16 | | | 20 | 3 | 14 | 6 | 1164 | Iowa, 1931 |
| Kansas, 1931 | | | 216 | 5 | 23 | | 270 | 7 | | 50 | | | | 2 | | | 11 | 2 | 13 | 10 | 609 | Kansas, 1931 |
| Kentucky, '31 | 1 | 6 | 167 | 2 | 18 | 1 | 182 | 6 | | 31 | | 1 | | 3 | | | 7 | 4 | 8 | 3 | 440 | Ky., 1931 |
| La., 1931 | | | 137 | 1 | 10 | | 197 | 4 | | 41 | | 2 | 1 | 1 | | | 3 | 2 | | 1 | 400 | La., 1931 |
| Maryland, '31 | 4 | 2 | 176 | 8 | 24 | 2 | 245 | 13 | | 45 | | 13 | | 7 | | | 7 | 8 | 5 | 4 | 563 | Maryland, '31 |
| Mass., 1931 | 18 | 7 | 336 | 6 | 76 | 15 | 948 | 43 | | 77 | | 34 | 2 | 24 | 18 | 6 | 15 | 26 | 3 | 55 | 1709 | Mass., 1931 |
| Michigan, '31 | 4 | | 333 | 6 | 47 | 9 | 755 | 27 | | 49 | 3 | 4 | | 10 | 1 | | 13 | 2 | 14 | 14 | 1291 | Mich., 1931 |
| Minn., 1931 | | | 385 | 16 | 40 | 3 | 437 | 15 | | 84 | 13 | 4 | | 9 | | | 12 | 6 | 24 | 12 | 1060 | Minn., 1931 |
| Missouri, 1931 | | 7 | 480 | 11 | 41 | 5 | 465 | 18 | | 74 | | 2 | | 6 | 5 | | 3 | 2 | 11 | 44 | 1174 | Missouri, '31 |
| Mont., 1931 | | | 58 | | 8 | | 107 | 1 | | 26 | | | | 1 | | | | 2 | 2 | 5 | 210 | Mont., 1931 |
| Nebraska, 1931 | | | 207 | 4 | 11 | 2 | 235 | 4 | | 58 | | | | | | | 10 | 1 | 11 | 2 | 545 | Neb., 1931 |
| Nevada, 1931 | | | 15 | | 2 | | 53 | 3 | | 3 | | 5 | | 1 | | | | | | 2 | 84 | Nevada, '31 |
| N. Hamp., '31 | | 2 | 101 | 6 | 8 | | 185 | 4 | | 6 | 1 | 4 | | 6 | | 5 | 4 | | 2 | 2 | 336 | N. H., 1931 |
| N. Jersey, '31 | 12 | 3 | 363 | 7 | 83 | 5 | 708 | 33 | | 57 | 1 | 39 | | 11 | 9 | 8 | 5 | 10 | 10 | 37 | 1401 | N. J., 1931 |
| N. Mexico, '31 | | | 60 | | 4 | | 75 | 1 | | 8 | | | | | | | 1 | 2 | | 2 | 153 | N. Mex., '31 |
| Nor. Car., '31 | | | 245 | | 21 | | 281 | 9 | | 44 | 4 | 3 | | 2 | | | 5 | 2 | 2 | 4 | 622 | N. Car., '31 |
| N. Dak., 1931 | | | 87 | | 14 | | 92 | 1 | | 46 | | | | 7 | | | 2 | | 4 | 1 | 254 | N. Dak., '31 |
| Ohio, 1931 | 4 | 8 | 501 | 9 | 77 | 4 | 894 | 36 | | 114 | | 12 | | 11 | 3 | 14 | 29 | 26 | 25 | 80 | 1847 | Ohio, 1931 |
| Okla., 1931 | | | 189 | | 15 | 2 | 213 | 3 | | 22 | | 1 | | 3 | | | 3 | 1 | 5 | | 457 | Okla., 1931 |
| Penna., 1931 | 26 | 43 | 654 | 7 | 174 | 9 | 1124 | 45 | | 131 | 8 | 42 | 1 | 26 | 16 | 25 | 32 | 23 | 35 | 43 | 2464 | Penna., 1931 |
| Rhode Isl., '31 | 2 | 2 | 45 | | 12 | 2 | 134 | 3 | | 9 | | 2 | | 4 | 1 | | | 2 | 1 | | 219 | Rh. Isl., '31 |
| So. Car., 1931 | | 2 | 186 | | 11 | 1 | 150 | | | 6 | | | | | | | 1 | 1 | | 7 | 365 | S. Car., 1931 |
| S. Dakota, '31 | | | 79 | 6 | 10 | | 57 | 1 | | 30 | | | | 2 | | | 7 | | 5 | 1 | 198 | S. Dak., '31 |
| Texas, 1931 | 1 | 2 | 597 | 6 | 27 | 9 | 662 | 14 | | 139 | | 5 | | 9 | | | 3 | 6 | 4 | 14 | 1498 | Texas, 1931 |
| Utah, 1931 | | | 69 | | 5 | | 100 | 4 | | 11 | | 1 | | 3 | | | 1 | | | 7 | 201 | Utah, 1931 |
| Vermont, 1931 | | 1 | 58 | | 11 | | 123 | 3 | | 21 | | | | 2 | | | | | 4 | | 223 | Vermont, '31 |
| Virginia, 1931 | | 4 | 257 | 1 | 22 | 2 | 260 | 9 | | 22 | 5 | 10 | | | | | 2 | 3 | 6 | 15 | 618 | Va., 1931 |
| Wash., 1931 | | | 116 | | 13 | 3 | 258 | 5 | | 31 | | 2 | 2 | 7 | | | 12 | 2 | 1 | 25 | 477 | Wash., 1931 |
| West Va., '31 | 2 | 1 | 148 | | 21 | 1 | 209 | 18 | | 26 | 3 | | | 3 | | 1 | 1 | | 6 | 4 | 444 | W. Va., 1931 |
| Wisconsin, '31 | | | 374 | 21 | 22 | 7 | 384 | 14 | | 54 | 1 | 1 | | 6 | 6 | 4 | 16 | 3 | 11 | 21 | 945 | Wis., 1931 |
| D. of C., 1931 | 10 | 1 | 33 | 4 | 12 | 2 | 147 | 9 | | 16 | 1 | 4 | | 2 | 1 | | 1 | 4 | | 6 | 253 | D. of C., '31 |
| Totals | 103 | 134 | 9192 | 176 | 1231 | 124 | 14188 | 471 | * | 1891 | 44 | 235 | 6 | 286 | 87 | 93 | 317 | 177 | 285 | 603 | 29643 | Totals |

*Combined with Brockway.

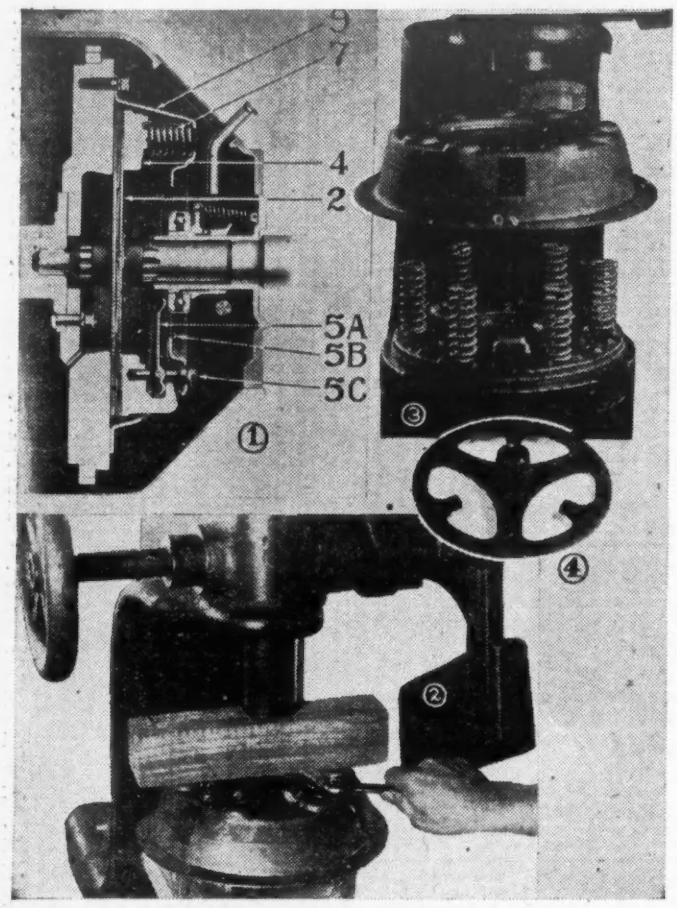
# Major Specifications and Mechanical Details of 1932 Commercial Cars

## LEADING MAKES NATIONALLY DISTRIBUTED

| Make and Model | Capacity—Tons or Lbs. | Chassis Price | Engine | Valve Arr'g'm't | No. of Cyls. | Bore and Stroke | Piston Disp. | Tax H. P. | Max. Brake H. P. and Peak R. P. M. | Type Camshaft Drive | Radiator Make | Clutch Make | Universals Make | Steering Gear Make | Carburetor Make | Fuel Feed Type | Make Electr'l System | Mase Transmission | No. Spds. For. | Rear Axle Make | Type Final Drive | Final Gear Reduction | Type Service Brakes | Area Service Brake Lining | Standard Wheel Base | Chassis Wgt. | Standard Tire Sizes Front | Rear |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austin | 400 | 475 | Own | L | 4 | 2.2x3 | 45.6 | 7.8 | 13@3000 | G | Hex | Rock | Spic | Own | Til | Gra | Aut | W-G | 3 | Sal | Sp | 5.25 | O4M | 76.5 | 75 | 1210 | 18x3.75 | 18x3.75 |
| Autocar R | 1½ | 2250 | Own | L | 6 | 3¾x4¾ | 314.0 | 33.7 | 75@2400 | G | G & O | Br-L | Spic | Ross | Str | P | DR | Br-L | 4 | Own | Sp | 33.4 | 4IH | 388 | *159 | 5350 | 20x7.00 | 20x7.00D |
| Autocar D | 2-2½ | 3500 | Own | L | 6 | 4 x4¾ | 358.0 | 38.4 | 82@2400 | G | Per | Long | Spic | Ross | Str | Vac | DR | Own | 4 | Own | 2R | 33.5 | LO4IDV* | 460 | 150 | 5600 | 20x8.25 | 20x8.25D |
| Autocar A | 1½-2 | 3300 | Own | L | 6 | 4 x4¾ | 358.0 | 38.4 | 82@2400 | G | G & O | Long | Spic | Ross | Str | P | DR | Own | 5 | Own | Sp | 29.7 | LO4IDV* | 460 | 150 | 5400 | 20x8.25 | 20x8.25 |
| †Autocar SH | 2½-2 | 4300 | Own | L | 6 | 4½x4¾ | 404.0 | 43.4 | 92@2400 | G | Own | Long | Spic | Ross | Str | Gra | DR | Own | 4 | Own | 2R | 44.0 | O2IM-T | 328 | 114 | 6770 | 34x7 | 34x7D |
| †Autocar H | 2½-3 | 4100 | Own | L | 4 | 4½x5½ | 350.0 | 32.4 | 45@1450 | G | Own | Long | Spic | Ross | Str | Gra | DR | Own | 4 | Own | 2R | 48.6 | O2IM | 328 | 114 | 6770 | 34x7 | 34x7D |
| †Autocar HS | 3-3½ | 4500 | Own | L | 4 | 4½x5½ | 350.0 | 32.4 | 45@1450 | G | Own | Long | Spic | Ross | Str | Gra | DR | Own | 4 | Own | 2R | 54.3 | O2IM | 516 | 114 | 7600 | 40x8 | 40x8D |
| †Autocar SHS | 3-3½ | 4800 | Own | L | 6 | 4¼x4¾ | 404.0 | 43.4 | 92@2400 | G | Own | Long | Spic | Ross | Str | Gra | DR | Own | 4 | Own | 2R | 54.3 | O2IM-T | 516 | 114 | 8100 | 40x8 | 40x8D |
| Autocar N | 3-3½ | 4600 | Own | L | 6 | 4¼x4¾ | 404.0 | 43.4 | 92@2400 | G | Own | Long | Spic | Ross | Str | Vac | DR | Own | 4 | Own | 2R | 41.2 | OL4IHV-T | 574 | 174 | 7990 | 20x9.75 | 20x9.75D |
| Autocar TFA | 3½-5 | 6100 | Own | L | 6 | 4½x4¾ | 453.0 | 48.6 | 101@2400 | G | Own | Long | Spic | Ross | Str | Vac | DR | Own | 12 | Own | 2R | 101.3 | LO4IDV | 602 | 192 | 9300 | 20x10.50 | 20x10.50D |
| Autocar C | 3½-5 | 5900 | Own | L | 6 | 4½x4¾ | 453.0 | 48.6 | 101@2400 | G | Own | Long | Spic | Ross | Str | Vac | DR | Own | 4 | Own | 2R | 51.7 | O4IMV-T | 516 | 172 | 9500 | 24x10.50 | 24x10.50D |
| Autocar FE | 7½ | 11000 | Ster | L | 6 | 5¼x6 | 780.0 | 66.2 | 156@1800 | G | G & O | Br-L | Spic | Ross | Zen | P | NE | Br-L | 12 | Wis | 2R | 89.2 | W4IA-T | 674 | 180 | 12300 | 24x10.50 | 24x10.50D |
| *Autocar GE | 10 | 12500 | Ster | L | 6 | 5¼x6 | 780.0 | 66.2 | 156@1800 | G | G & O | Br-L | Spic | Ross | Zen | P | NE | Br-L | 12 | Tim | Wo | 82.2 | W6IA-T | 720 | 198 | 16300 | 20x9.75 | 20x9.75D |
| Brockway 80 C | * 9500 | 1215 | Con | L | 6 | 3¼x4 | 214.7 | 27.3 | 71@3200 | C | G & O | Borg | Spic | Ross | Zen | P | Aut | W-G | 4 | Tim | Sp | 36.2 | CB4IM | 248 | 149 | 4075 | 20x6.00 | 20x6.00D |
| Brockway 90 C | *11500 | 1525 | Con | L | 6 | 3⅜x4⅝ | 248.2 | 27.3 | 70@3200 | C | G & O | Borg | Spic | Ross | Zen | P | Aut | W-G | 4 | Tim | Sp | 37.4 | CB4IM | 280 | 149 | 4355 | 20x6.50 | 20x6.50D |
| Brockway 92 C | *12500 | 1800 | Con | L | 6 | 3⅜x4⅝ | 248.2 | 27.3 | 70@3200 | C | G & O | Borg | Spic | Ross | Zen | P | Aut | W-G | 4 | Tim | Sp | 37.4 | CB4IM | 280 | 149 | 4450 | 32x6.00 | 32x6.00D |
| Brockway 120 C | *15000 | 1990 | Con | H | 6 | 4 x4½ | 311.0 | 38.4 | 73@2400 | C | G & O | Br-L | Spic | Ross | Zen | P | *Aut | Br-L | 4 | Tim | Sp | 38.5 | L4IH | 353 | 156 | 5500 | 32x6 | 32x6D |
| Brockway 140 C | *17500 | 2495 | Con | H | 6 | 4 x4½ | 311.0 | 38.4 | 73@2400 | C | G & O | Br-L | Spic | Ross | Zen | P | *Aut | Br-L | 4 | Wis | 2R | 43.5 | L4IHV | 386 | 156 | 6100 | 32x6 | 32x6D |
| Brockway 141 C | *19500 | 2935 | Con | H | 6 | 4 x4½ | 311.0 | 38.4 | 73@2400 | C | G & O | Br-L | Spic | Ross | Zen | P | *Aut | Br-L | 4 | Wis | 2R | 46.2 | L4IHV | 380 | 170 | 6500 | 32x6 | 32x6D |
| Brockway 170 C | *19500 | 3160 | Con | H | 6 | 4½x4¾ | 380.9 | 40.8 | 89@2200 | C | G & O | Br-L | Spic | Ross | Zen | P | *Aut | Br-L | 4 | Wis | 2R | 46.6 | L4IHV | 380 | 170 | 7100 | 32x6 | 32x6D |
| Brockway 175 C | *19500 | 3660 | Con | H | 6 | 4⅝x4¾ | 427.5 | 45.9 | 100@2200 | C | G & O | Br-L | Spic | Ross | Zen | P | *Aut | Ful | 8 | Wis | 2R | 48.6 | L4IHV | 380 | 170 | 7200 | 34x7 | 34x7D |
| Brockway 195 C | *22000 | 3820 | Con | H | 6 | 4½x4¾ | 380.9 | 40.8 | 89@2200 | C | G & O | Br-L | Spic | Ross | Zen | P | *Aut | Br-L | 4 | Wis | 2R | 52.4 | L4IHV | 471 | 170 | 8100 | 34x7 | 34x7D |
| Brockway 220 C | *25000 | 4560 | Con | H | 6 | 4⅝x4¾ | 427.5 | 45.9 | 100@2200 | C | G & O | Br-L | Spic | Ross | Zen | P | *Aut | Br-L | 4 | Wis | 2R | 50.7 | L4IHV | 546 | 170 | 8075 | 36x8 | 36x8D |
| Brockway 260 C | *28000 | 5850 | Con | H | 6 | 4½x5¼ | 501.0 | 48.6 | 120@2200 | C | G & O | Ful | Spic | Ross | Zen | P | *Aut | Ful | 4 | Wis | 2R | 50.7 | L4IHV | 546 | 212 | 9000 | 22x10.50 | 22x10.50D |
| Chevrolet | ½ | 345 | Own | H | 6 | 3⅛x3¾ | 194.0 | 26.3 | 50@2600 | G | Har | Own | Own | Own | Car | P | DR | Own | 3 | Own | Sp | 13.6 | O4IM | 101 | 109 | *1880 | 19x4.75 | 19x4.75 |
| Chevrolet | 1½ | 520 | Own | H | 6 | 3⅛x3¾ | 194.0 | 26.3 | 50@2600 | G | Har | Own | Own | Own | Car | P | DR | Own | 4 | Own | Sp | 33.4 | —— | — | 131 | 2700 | 30x5 | 32x6 |
| Chevrolet | 1½ | 575 | Own | H | 6 | 3⅛x3¾ | 194.0 | 26.3 | 50@2600 | G | Har | Own | Own | Own | Car | P | DR | Own | 4 | Own | Sp | 33.4 | O4IM | 170 | 157 | 3015 | 30x5 | 30x5D |
| Diamond T 210 | 1½ | 595 | Her | L | 6 | 3⅜x4¼ | 228. | 27.3 | 60@2400 | G | G & O | Borg | Spic | Ross | Zen | P | Aut | W-G | 4 | Cla | Sp | — | L4IH | 196 | 135½ | 3100 | 20x5.50B | 20x6.50B |
| Diamond T 240 A | 1¾ | 795 | Her | L | 6 | 3⅜x4¼ | 228. | 27.3 | 60@2400 | G | G & O | Borg | Spic | Ross | Zen | P | Aut | W-G | 4 | Cla | Sp | — | L4IH | 219 | 137 | 3400 | 20x6.00B | 32x6P |
| Diamond T 310 | 2 | 995 | Her | L | 6 | 3⅜x4¼ | 263. | 31.5 | 65@2400 | G | G & O | Borg | Spic | Ross | Zen | P | Aut | W-G | 4 | Cla | Sp | — | L4IH | 350 | 155 | 4200 | 20x6.50B | 20x6.50DB |
| Diamond T 410 | 3 | 1595 | Her | L | 6 | 3¾x4½ | 298. | 33.7 | 68@2400 | G | G & O | Borg | Spic | Ross | Zen | P | Aut | Cov | 4 | Cla | Sp | — | L4IHV | 350 | 160¾ | 5400 | 20x7.50B | 20x7.50DB |
| Diamond T 510 | 4 | 1995 | Her | L | 6 | 4 x4½ | 339. | 38.4 | 75@2400 | G | G & O | Cov | Spic | Ross | Zen | P | Aut | Cov | 4 | Tim | Sp | — | L4IHV | 408 | 168 | 6000 | 20x7.00B | 25x8.25DB |
| Diamond T 303 F B | 2-2½ | 2425 | Her | L | 6 | 4 x4½ | 339.0 | 38.4 | 75@2400 | G | G & O | Cov | Spic | Ross | Zen | P | L-N | Cov | 4 | Cla | Sp | — | L4IHV | 408 | 199 | 6100 | 20x7.50 | 20x7.50DB |
| Diamond T 504 A | 3 | 2650 | Her | L | 6 | 4 x4½ | 339.0 | 38.4 | 75@2400 | G | G & O | Cov | Spic | Ross | Zen | P | Aut | Cov | 4 | Wis | 2 R | — | L4IHV-T | 408 | 176½ | 6400 | 20x8.25B | 20x8.25DB |
| Diamond T 506 A | 3 | 2950 | Her | L | 6 | 4¼x4½ | 383.0 | 43.3 | 91@2200 | G | G & O | Cov | Spic | Ross | Zen | P | L-N | Cov | 5 | Wis | 2 R | — | L4IHV-T | 408 | 184 | 6400 | 20x8.25B | 20x8.25DB |
| Diamond T 603 | 3-4 | 3395 | Her | L | 6 | 4⅜x4¾ | 428.4 | 45.9 | 94@2200 | G | G & O | Cov | Spic | Ross | Zen | P | Aut | Cov | 5 | Wis | 2 R | — | L4IHV-T | 499 | 169 | 7500 | 20x9.00B | 20x9.00DB |
| Diamond T 606 B | 3-4 | 3695 | Her | L | 6 | 4½x5¼ | 501.0 | 48.6 | 110@2200 | G | G & O | Cov | Spic | Ross | Zen | P | L-N | Cov | 5 | Wis | 2 R | — | L4IHV-T | 499 | 187½ | 7500 | 20x9.00B | 20x9.00DB |
| Diamond T 750 | 4-5 | 4925 | Her | L | 6 | 4⅝x5¼ | 529.0 | 51.4 | 114@2200 | G | G & O | Cov | Spic | Ross | Zen | P | Aut | Cov | 5 | Wis | 2 R | — | W4IA | 552 | 178 | 9300 | 22x9.75B | 22x9.75DB |
| *Diamond T 801 | 4 | 4140 | Her | L | 6 | 4⅜x4¾ | 428.4 | 45.9 | 94@2200 | G | G & O | Cov | Spic | Ross | Zen | P | Aut | Br-L | 7 | Own | Wo | — | L6IHV-T | 571 | 189½ | 8300 | 26x8P | 38x8P |
| *Diamond T 1201 | 6 | 5600 | Her | L | 6 | 4½x5¼ | 501.0 | 48.6 | 110@2200 | G | G & O | Cov | SpicBlo | Ross | Zen | P | Aut | Br-L | 7 | Tim | Wo | — | W4IA-T | 238 | 190 | 11000 | 34x7P | 34x7DP |
| *Diamond T 1602 | 8 | 6400 | Her | L | 6 | 4⅝x5¼ | 529.0 | 51.3 | 114@2200 | G | G & O | Cov | SpicBlo | Ross | Zen | P | Aut | Br-L | 7 | Tim | Wo | — | W4IA-T | 238 | 190 | 11700 | 36x8P | 36x8DP |
| *Diamond T 1603 | 8 | 7500 | Wak | L | 6 | 5 x5¼ | 677.4 | 60.0 | 125@2000 | G | G & O | Br-L | SpicBlo | Ross | Zen | P | Aut | Br-L | 7 | Tim | Wo | — | W4IA-T | 238 | 194 | 12500 | 36x8P | 36x8D |
| Dodge Bros. UF 10 | ½ | 375 | Own | L | 4 | 3⅝x4¾ | 196.0 | 21.0 | 48@2800 | G | Fed | Borg | Un | Own | Car | P | DR | Own | 3 | Own | Sp | 12.8 | O4IH | 121 | 109 | 1925 | 19x5.00 | 19x5.00 |
| Dodge Bros. F 10 | ½ | 445 | Own | L | 6 | 3¼x4¼ | 211.5 | 25.3 | 66@3200 | C | Fed | Borg | Un | Own | Car | P | DR | Own | 3 | Own | Sp | 12.8 | O4IH | 121 | 109 | 1975 | 19x5.25 | 19x5.25 |
| Dodge Bros. U 1 | ¾ | 490 | Own | L | 4 | 3⅝x4¼ | 196.0 | 21.0 | 45@2800 | G | Fed | Borg | Spic | Han | Car | P | DR | Own | 3 | Own | Sp | 19.2 | O4IH | 189 | 124 | 2260 | 20x6.00 | 20x6.00 |
| Dodge Bros. DA 1 | ¾ | 595 | Own | L | 6 | 3⅝x3⅞ | 208.0 | 27.3 | 63@3200 | C | Fed | Borg | Spic | Han | Car | P | DR | Own | 3 | Own | Sp | 19.2 | O4IH | 189 | 124 | 2360 | 20x6.00 | 20x6.00 |
| Dodge Bros. U 1 | 1 | 495 | Own | L | 4 | 3⅝x4¼ | 196.0 | 21.0 | 45@2800 | G | Fed | Borg | Spic | Han | Car | P | DR | Own | 4 | Own | Sp | 36.1 | O4IH | 206 | 133 | 2590 | 20x6.00 | 32x6 |
| Dodge Bros. DA 1 | 1 | 595 | Own | L | 6 | 3⅝x3⅞ | 208.0 | 27.3 | 63@3200 | C | Fed | Borg | Spic | Han | Zen | P | DR | Own | 4 | Own | Sp | 33.4 | O4IH | 206 | 133 | 2690 | 20x6.00 | 32x6 |
| Dodge Bros. UG 30 | 1½ | 525 | Own | L | 4 | 3⅝x4¾ | 196.0 | 21.0 | 48@2800 | G | Fed | Borg | Cle | Own | Car | P | DR | Own | 5 | Own | Sp | 36.9 | O4IH | 176 | 131 | 2490 | 20x6.00 | 32x6 |
| Dodge Bros. UG 31 | 1½ | 550 | Own | L | 4 | 3⅝x4¾ | 196.0 | 21.0 | 48@2800 | G | Fed | Borg | Cle | Own | Car | P | DR | Own | 5 | Own | Sp | 36.1 | O4IH | 176 | 131 | 2640 | 20x6.00 | 36x6 |
| Dodge Bros. G 30 | 1½ | 585 | Own | L | 6 | 3¼x4¼ | 211.5 | 25.3 | 60@3100 | — | — | — | — | — | — | P | — | — | 5 | — | — | — | 4HI | — | 131 | 2580 | 20x6.00 | 32x6 |
| Dodge Bros. UF 30 | 1½ | 595 | Own | L | 4 | 3⅝x4¾ | 196.0 | 21.0 | 48@2800 | G | Fed | Borg | Cle | W-G | Car | P | — | — | 5 | Own | Sp | 37.1 | O4IH | 187 | 136 | 2581 | 20x6.00 | 32x6 |
| Dodge Bros. G 31 | 1½ | 610 | Own | L | 6 | 3¼x4½ | 211.5 | 25.3 | 60@3100 | — | — | — | — | — | — | P | — | — | 4 | — | — | — | 4HI | — | 157 | 2710 | 20x6.00 | 32x6 |
| Dodge Bros. UF 31 | 1½ | 670 | Own | L | 4 | 3⅝x4¾ | 196.0 | 21.0 | 48@2800 | G | Fed | Borg | Cle | W-G | Car | P | DR | Own | 4 | Own | Sp | 37.1 | O4IH | 229 | 165 | 2757 | 20x6.00 | 32x6 |
| Dodge Bros. F 30 | 1½ | 695 | Own | L | 6 | 3¼x4¼ | 211.5 | 25.3 | 66@3200 | C | Fed | Borg | Cle | W-G | Car | P | — | — | 4 | Own | Sp | 37.1 | O4IH | 187 | 136 | 2631 | 20x6.00 | 32x6 |
| Dodge Bros. F 31 | 1½ | 770 | Own | L | 6 | 3¼x4¼ | 211.5 | 25.3 | 66@3200 | C | Fed | Borg | Cle | W-G | Car | P | DR | Own | 4 | Own | Sp | 37.1 | O4IH | 229 | 165 | 2807 | 20x6.00 | 32x6 |
| Dodge Bros. F 35 | 1½ | 1425 | Own | L | 6 | 3⅜x3⅞ | 208.0 | 27.3 | 63@3200 | C | Fed | Borg | Cle | Han | Zen | P | DR | Own | 4 | Own | Sp | 41.4 | O4IH | 305 | 140 | 3780 | 20x6.00 | 20x6.00D |
| Dodge Bros. F 36 | 1½ | 1485 | Own | L | 6 | 3⅜x3⅞ | 208.0 | 27.3 | 63@3200 | C | Fed | Borg | Cle | Han | Zen | P | DR | Own | 4 | Own | Sp | 41.4 | O4IH | 305 | 165 | 3972 | 20x6.00 | 20x6.00D |
| Dodge Bros. G 43 | 2 | 795 | Own | L | 6 | 3¼x4⅜ | 217.7 | 25.3 | 73@3200 | — | — | — | — | — | — | P | DR | Own | 4 | — | Sp | — | 4HI | 229 | 136 | 3345 | 20x7.00 | 20x7.00D |
| Dodge Bros. G 44 | 2 | 825 | Own | L | 6 | 3¼x4⅜ | 217.7 | 25.3 | 73@3200 | — | — | — | — | — | — | P | DR | Own | 4 | — | Sp | — | 4HI | 229 | 165 | 3465 | 20x7.00 | 20x7.00D |
| *Dodge Bros. F 40 | 2 | 1995 | Own | L | 6 | 3⅝x5 | 309.6 | 31.5 | 96@3000 | G | Long | Borg | Cle | Sag | DL | P | DR | Own | 4 | Own | Sp | 43.7 | O4IH-T | 350 | 150 | 5173 | 20x6.50 | 20x6.50D |
| *Dodge Bros. F 41 | 2 | 2085 | Own | L | 6 | 3⅝x5 | 309.6 | 31.5 | 96@3000 | G | Long | Borg | Cle | Sag | DL | P | DR | Own | 4 | Own | Sp | 43.7 | O4IH-T | 350 | 165 | 5211 | 20x6.50 | 20x6.50D |
| Dodge Bros. F 42 | 2 | 2180 | Own | L | 6 | 3⅝x5 | 309.6 | 31.5 | 75@3200 | C | Fed | Borg | Cle | Own | Car | P | DR | Own | 5 | Own | Sp | 50.0 | O4IH-T | 229 | 136 | 5311 | 20x7.00 | 20x7.00D |
| Dodge Bros. | 3 | 1515 | Own | L | 6 | 3⅜x4½ | 241.0 | 27.3 | 78@3000 | C | Long | Borg | Un | Han | Zen | Vac | NE | Own | 4 | Own | Sp | 46.3 | O4IH | 382 | 135 | 4238 | 32x6 | 32x6D |
| Dodge Bros. | 3 | 1565 | Own | L | 6 | 3⅜x4½ | 241.0 | 27.3 | 78@3000 | C | Long | Borg | Un | Han | Zen | Vac | NE | Own | 4 | Own | Sp | 46.3 | O4IH | 382 | 165 | 4520 | 32x6 | 32x6D |
| Dodge Bros. | 3 | 1615 | Own | L | 6 | 3⅜x4½ | 241.0 | 27.3 | 78@3000 | C | Fed | Borg | Un | Han | Zen | Vac | NE | Own | 4 | Own | Sp | 46.3 | O4IH | 382 | 185 | 4715 | 32x6 | 32x6D |
| Dodge Bros. F 60 | 3 | 2645 | Own | L | 6 | 3⅝x5 | 309.6 | 31.5 | 96@3000 | G | Long | Borg | Cle | Sag | DL | P | DR | Own | 4 | Own | 2 R | 56.6 | O4IH-T | 416 | 146 | 5543 | 32x6 | 32x6D |
| *Dodge Bros. F 61 | 3 | 2575 | Own | L | 6 | 3⅝x5 | 309.6 | 31.5 | 96@3000 | G | Long | Borg | Cle | Sag | DL | P | DR | Own | 4 | Own | Sp | 48.8 | O4IH-T | 416 | 170 | 5789 | 32x6 | 32x6D |
| *Dodge Bros. F 62 | 3 | 2695 | Own | L | 6 | 3⅝x5 | 309.6 | 31.5 | 96@3000 | G | Long | Borg | Cle | Sag | DL | P | DR | Own | 4 | Own | Sp | 48.8 | O4IH-T | 416 | 195 | 5901 | 32x6 | 32x6D |
| Dodge Bros. G 80 | 4 | 5250 | Own | L | 8 | 3½x5 | 384.8 | 39.2 | 120@3000 | G | Long | Borg | Cle | Sag | Str | P | DR | Own | 5 | Own | Sp | 62.7 | B4IA-T | 650 | 146 | 7640 | 20x9.75 | 20x9.75D |
| Dodge Bros. G 81 | 4 | 5285 | Own | L | 8 | 3½x5 | 384.8 | 39.2 | 120@3000 | G | Long | Borg | Cle | Sag | Str | P | DR | Own | 5 | Own | Sp | 69.6 | B4IA-T | 650 | 170 | 7840 | 20x9.75 | 20x9.75D |
| Dodge Bros. G 82 | 4 | 5350 | Own | L | 8 | 3½x5 | 384.8 | 39.2 | 120@3000 | G | Long | Borg | Cle | Sag | Str | P | DR | Own | 5 | Own | Sp | 69.6 | B4IA-T | 650 | 195 | 8040 | 20x9.75 | 20x9.75D |
| Dodge Bros. G 83 | 4 | 5415 | Own | L | 8 | 3½x5 | 384.8 | 39.2 | 120@3000 | G | Long | Borg | Cle | Sag | Str | P | DR | Own | 5 | Own | Sp | 69.6 | B4IA-T | 650 | 220 | 8400 | 20x9.75 | 20x9.75D |
| Essex Com. | ¾ | 435 | Own | L | 6 | 2¾x4½ | 163.0 | 18.2 | 55@3300 | C | Har | Own | Spic | Gem | Mar | Vac | Aut | Own | 3 | Own | Sp | 5.40 | 4M | — | 110½ | 1970 | 20x5 | 20x5.50 |
| Federal D 3 | *1½ | 670 | Con | L | 4 | 3⅞x4¼ | 200.5 | 24.0 | 50@2700 | C | Long | Borg | Cle | Gem | Zen | P | DR | W-G | 4 | Cla | Sp | 40.8 | L4IH | 377 | 130 | 3225 | 20x6.00 | 32x6 |
| Federal E 3 | *1½ | 695 | Con | L | 6 | 3⅜x4 | 215.0 | 27.3 | 72@3400 | C | Long | Borg | Cle | Gem | Zen | P | DR | W-G | 4 | Cla | Sp | 40.8 | L4IH | 377 | 130 | 3225 | 20x6.00 | 32x6 |
| Federal F 7 | *1¾ | 1325 | Con | L | 6 | 3⅜x4⅝ | 248.0 | 27.3 | 64@2600 | C | Long | Borg | Pet | Gem | Zen | P | DR | Own | 4 | Tim | Sp | 29.2 | L4IH | 413 | 132 | 3765 | 30x5 | 30x5D |
| Federal F 8 | *1¾-2 | 1425 | Con | L | 6 | 3⅜x4⅝ | 248.0 | 27.3 | 64@2600 | C | Long | Borg | Pet | Gem | Zen | P | DR | Own | 4 | Tim | Sp | 34.0 | L4IH | 438 | 132 | 3865 | 30x5 | 30x5D |
| Federal A 6 | *2 | 1695 | Con | L | 6 | 3⅜x4⅝ | 248.0 | 27.3 | 64@2600 | C | Long | Borg | Pet | Ross | Zen | Vac | DR | Own | 4 | Cla | Sp | 38.5 | L4IH | 450 | 151 | 4580 | 32x6 | 32x6D |
| Federal A 6 T | *2½ | 1995 | Con | L | 6 | 3⅜x4⅝ | 248.0 | 27.3 | 64@2600 | C | Long | Borg | Pet | Ross | Zen | Vac | DR | Own | 4 | Tim | Sp | 47.1 | L4IHV | 659 | 151 | 5110 | 32x6 | 32x6D |
| Federal A 6 T W | *2½ | 2130 | Con | L | 6 | 3⅜x4⅝ | 248.0 | 27.3 | 64@2600 | C | Long | Borg | Pet | Ross | Zen | Vac | DR | Own | 4 | Tim | Sp | 52.9 | L4IHV | 659 | 151 | 5110 | 32x6 | 32x6D |
| Federal T 3 W | *2½ | 1595 | Wau | L | 4 | 4 x5 | 251.0 | 25.6 | 50@2000 | G | Long | Borg | Pet | Ross | Zen | Vac | DR | Own | 4 | Tim | Wo | 36.3 | L4IH | 575 | 148 | 5110 | 32x6 | 36x8 |
| Federal T 8 W F | *2½ | 1795 | Con | L | 6 | 3⅜x4⅝ | 248.0 | 27.3 | 64@2600 | C | Long | Borg | Pet | Ross | Zen | Vac | DR | Own | 4 | Tim | Wo | 38.8 | L4IHV | 659 | 148 | 5400 | 32x6 | 32x6D |
| *Federal D 2 S W | *2½-3 | 1050 | Con | L | 4 | 3⅞x4¼ | 200.5 | 24.0 | 50@2700 | C | Long | Borg | Cle | Gem | Zen | P | DR | W-G | 4 | Cla | Sp | 40.8 | L6IH | 566 | 140 | 3925 | 20x6.00 | 32x6 |
| *Federal E 2 S W | *2½-3 | 1150 | Con | L | 6 | 3⅜x4 | 215.0 | 27.3 | 60@2600 | C | Long | Borg | Cle | Gem | Zen | P | DR | W-G | 4 | Cla | Sp | 40.8 | L6IH | 566 | 145 | 3975 | 20x6.00 | 32x6 |
| *Federal D 2 D | *2½-3 | 1350 | Con | L | 4 | 3⅞x4¼ | 200.5 | 24.0 | 50@2700 | C | Long | Borg | Cle | Gem | Zen | P | DR | W-G | 4 | Cla | Sp | 40.8 | L6IH | 566 | 140 | 4235 | 20x6.00 | 32x6 |
| *Federal E 2 D | *2½-3 | 1450 | Con | L | 6 | 3⅜x4 | 215.0 | 27.3 | 60@2600 | C | Long | Borg | Cle | Gem | Zen | P | DR | W-G | 4 | Cla | Sp | 40.8 | L6IH | 566 | 145 | 4310 | 20x6.00 | 32x6 |
| Federal T 10 B | *2½-3 | 2550 | Con | H | 6 | 4 x4½ | 311.0 | 38.4 | 75@2200 | C | Long | Borg | Pet | Ross | Zen | P | DR | Own | 4 | Tim | Sp | 44.5 | L4IHV | 659 | 165 | 6550 | 34x7 | 34x7D |
| Federal T 10 W | *2½-3 | 2685 | Con | H | 6 | 4 x4½ | 311.0 | 38.4 | 75@2200 | C | Long | Borg | Pet | Ross | Zen | P | DR | Own | 4 | Tim | Sp | 44.0 | L4IHV | 659 | 165 | 6550 | 34x7 | 34x7D |
| Federal T 10 D R | *2½-3 | 2685 | Con | H | 6 | 4 x4½ | 311.0 | 38.4 | 75@2200 | C | Long | Borg | Pet | Ross | Zen | P | DR | Own | 4 | Tim | 2R | 45.6 | L4IHV | 659 | 165 | 6550 | 34x7 | 34x7D |
| Federal U 6 | *3½-4 | 3860 | Con | H | 6 | 4½x4¾ | 381.0 | 40.8 | 85@2200 | C | Long | Borg | Pet | Ross | Zen | P | DR | Br-L | 7 | Tim | Wo | 64.6 | L4IHV | 767 | 165 | 7420 | 36x8 | 36x8D |
| Federal U 6 D R | *3½-4 | 3860 | Con | H | 6 | 4½x4¾ | 381.0 | 40.8 | 85@2200 | C | Long | Borg | Pet | Ross | Zen | P | DR | Br-L | 7 | Tim | 2R | 69.6 | L4IHV | 767 | 165 | 7420 | 36x8 | 36x8D |
| *Federal A 6 S W | *4 | 2195 | Con | L | 6 | 3⅜x4⅝ | 248.0 | 27.3 | 64@2600 | C | Long | Borg | Pet | Ross | Zen | Vac | DR | Own | 4 | Cla | Sp | 38.5 | L6IHV | 675 | 164 | 5620 | 32x6 | 32x6D |
| Federal C 7 | *5-6 | 4485 | Con | H | 6 | 4⅜x4¾ | 428.4 | 45.9 | 100@2200 | C | Long | Borg | Pet | Han | Zen | P | DR | Br-L | 7 | Tim | 2R | 75.2 | L4IHV | 866 | 195 | 9550 | 20x9.75 | 20x9.75D |
| Federal C 7 W | *5-6 | 4485 | Con | H | 6 | 4⅜x4¾ | 428.4 | 45.9 | 100@2200 | C | Long | Borg | Pet | Han | Zen | P | DR | Br-L | 7 | Tim | W | 78.0 | L4IHV | 866 | 195 | 9550 | 20x9.75 | 20x9.75D |
| Federal C 8 | *5-6 | 4895 | Con | H | 6 | 4⅜x4¾ | 428.4 | 45.9 | 100@2200 | C | Long | Borg | Pet | Han | Zen | P | DR | Br-L | 7 | Tim | 2R | 75.2 | L4IA | 921 | 195 | 9650 | 20x9.75 | 20x9.75D |
| Federal C 8 W | *5-6 | 4895 | Con | H | 6 | 4⅜x4¾ | 428.4 | 45.9 | 100@2200 | C | Long | Borg | Pet | Han | Zen | P | DR | Br-L | 7 | Tim | Wo | 78.0 | L4IA | 921 | 195 | 9650 | 20x9.75 | 20x9.75D |
| Federal X 8 | *7½ | 4335 | Con | L | 4 | 5 x6 | 471.0 | 40.0 | 61@1350 | G | Long | Borg | Pet | Gem | Zen | Vac | AB | Br-L | 7 | Tim | Wo | 111.0 | T21MV | 603 | 162 | 9750 | 36x6S | 40x14S |
| Federal X 8 D R | *7½ | 4335 | Con | L | 4 | 5 x6 | 471.0 | 40.0 | 61@1350 | G | Long | Borg | Pet | Gem | Zen | Vac | AB | Br-L | 7 | Tim | 2R | 106.0 | T21MV | 603 | 162 | 9750 | 36x6S | 40x14S |
| Federal X 8 R | *7½ | 4735 | Con | H | 6 | 4⅜x4¾ | 428.4 | 45.9 | 100@2200 | C | Long | Borg | Pet | Ross | Zen | P | DR | Br-L | 7 | Tim | Wo | 111.0 | T21MV | 462 | 162 | 10475 | 40x8 | 40x8D |
| Federal X 8 R D R | *7½ | 4735 | Con | H | 6 | 4⅜x4¾ | 428.4 | 45.9 | 100@2200 | C | Long | Borg | Pet | Ross | Zen | P | DR | Br-L | 7 | Tim | 2R | 106.0 | T21MV | 462 | 162 | 10475 | 40x8 | 40x8D |
| *Federal T 10 SW | 8 | 3895 | Con | H | 6 | 4 x4½ | 339.0 | 38.4 | 80@2200 | C | Long | Borg | Pet | Ross | Zen | P | DR | Br-L | 7 | Tim | Sp | 74.1 | L6IHV | 986 | 188 | 9600 | 34x7 | 34x7D |
| Ford | ½-¾ | 320 | Own | L | 4 | 3¾x4¼ | 200.0 | — | 50@2800 | G | Own | Long | Spic | Gem | Zen | Gra | Own | Own | 4 | Own | Sp | —— | —— | — | 106 | —— | 20x6.00B | 20x6.00DB |
| Ford | 1½ | 470 | Own | L | 4 | 3¾x4¼ | 200.0 | — | 50@2800 | G | Own | Long | Spic | Gem | Zen | Gra | Own | Own | 4 | Own | Sp | —— | —— | — | 131 | —— | 20x6.00B | 20x6.00DB |
| Ford | 1½ | 500 | Own | L | 4 | 3¾x4¼ | 200.0 | — | 50@2800 | G | Own | Long | Spic | Gem | Zen | Gra | Own | Own | 4 | Own | Sp | —— | —— | — | 157 | —— | 20x6.00B | 20x6.00DB |
| General Motors T-15 | *6500 | 645 | Own | L | 6 | 3⅛x3⅞ | 200.3 | 26.3 | 60@3000 | C | Long | Own | Mec | Sag | Mar | P | DR | Own | 3 | Own | Sp | 16.1 | B4IM | 211 | 130 | 2625 | 20x5.50B | 20x5.50B |
| General Motors T-18 | *8200 | 595 | Own | L | 6 | 3⅛x3⅞ | 200.3 | 26.3 | 66@3200 | C | Long | Own | Spic | Sag | Mar | P | DR | Own | 4 | Own | Sp | 35.7 | O4IM | 175 | 121 | 2800 | 30x5P | 32x6P |
| General Motors T-25 | *9000 | 1200 | Buick | H | 6 | 3⅛x4⅝ | 257.5 | 28.3 | 76@2500 | G | Long | Own | Spic | Sag | Mar | P | DR | Own | 4 | Own | Sp | 29.6 | B4IM | 239 | 130 | 3375 | 20x6.00B | 20x7.50B |
| General Motors T-19 | *10000 | 745 | Own | L | 6 | 3⅛x3⅞ | 200.3 | 26.3 | 66@3200 | C | Long | Own | Spic | Sag | Mar | P | DR | Own | 4 | Own | Sp | 40.7 | B4IM | 290 | 140 | 3110 | 20x5.50B | 32x6P |
| General Motors T-26 | *11000 | 1210 | Own | H | 6 | 3⅛x4⅝ | 257.5 | 28.3 | 76@2500 | G | Long | Own | Spic | Sag | Mar | P | DR | Own | 4 | Own | Sp | 35.7 | B4IM | 290 | 130 | 3685 | 20x6.50B | 20x8.25B |
| General Motors T-30 | *12500 | 1545 | Buick | H | 6 | 3⅛x4⅝ | 257.5 | 28.3 | 76@2500 | G | Long | Own | Spic | Sag | Mar | P | DR | Own | 4 | Own | Sp | 28.6 | B4IM | 288 | 141 | 4490 | 30x5P | 30x5DP |
| General Motors T-31 | 14000 | 1695 | Own | H | 6 | 3⅛x4⅝ | 257.5 | 28.3 | 76@2500 | G | Long | Own | Spic | Sag | Mar | P | DR | Own | 4 | Own | Sp | 35.5 | B4IM | 345 | 141 | 4695 | 32x6P | 30x6DP |
| General Motors T

# Production--Engineering--Factory

## SERVICE OPERATIONS ON THE THREE NEW BORG CLUTCHES




**Complete instructions on three new popular models of clutches have been compiled by the Borg & Beck Company, Chicago, division of Borg-Warner Corporation, under the direction of C. C. Blanchard, service manager. The models of clutches included in this article are used on Chrysler, De Soto, De Vaux, Dodge, Durant, Hupmobile, Nash, Oldsmobile, Plymouth, Rockne, Studebaker, Willys, Willys-Overland and Willys-Knight cars and are comparatively new in the automotive field. They are known as the 9A1, 10A1 and 11A1 types.**

**TYPE A1 SECTION**
**(Fig. 1)**

The clutch is a single-plate dry disk type, no adjustment for wear being provided in the clutch itself, as in some other types of Borg & Beck clutches. An individual adjustment is provided for locating each lever in manufacturing, but the adjusting nut is locked in place and should never be disturbed unless the clutch is dismantled for replacement of parts.

The release bearing is mounted on the transmission, and when the clutch pedal is depressed the bearing is moved toward the flywheel and contacts with the inner ends of the release levers (5A). The release levers are pivoted on pins mounted in eyebolts (5C), whose outer ends extend through holes in the clutch cover and are fitted with adjusting nuts by which each lever is located in correct position. The outer ends of the release levers engage the pressure plate lugs and thus the pressure plate (4) is pulled away from the driven plate (2), compressing the several small coil springs (7) which are assembled between the pressure plate and the clutch cover (9).

When the foot pressure is removed from the clutch pedal, the clutch springs force the pressure plate forward against the driven plate, gradually and smoothly applying the power of the engine to the rear wheels.

As the clutch facings wear the pressure plate moves closer to the flywheel face and the outer ends of the release levers follow. This causes the inner ends of the levers to travel farther toward the transmission and decreases the clearance between the release levers and the release bearing.

**COMPRESSING THE COVER**
**(Fig. 2)**

The effect on the clutch pedal is to decrease the clearance or free travel under the toe board, which is the distance the clutch pedal moves down away from the under side of the toe board before the release bearing comes in contact with the release levers. Some clearance must always be maintained to prevent the clutch pedal riding on the toe board and causing the clutch to slip. This clearance is restored by adjusting the clutch pedal.

**ADJUSTING OF CLUTCH PEDAL**

All cars are provided with one or more adjustments on the clutch pedal and pedal shaft and these should be adjusted in accordance with instructions supplied by the car manufacturer. In general, proceed as follows: Shift the pedal down away from the toe board until the clearance or free movement is one and one-half inches. The pedal pad should come in contact with the toe board when the pedal is pressed down. If it does not move that far, making it necessary to spring pedal to make the pad touch the toe board, shift the pedal down a little more.

Press the pedal down and note the distance the release bearing travels after it comes in contact with the release levers. To obtain clean release the levers should be pushed toward the flywheel $\frac{3}{8}$ inch for 9A1, $\frac{7}{16}$ inch for 10A1, and $\frac{7}{16}$ inch for 11A1. If it does not travel that distance, shift the pedal up, bearing in mind that the pedal pad must touch the toe board as above.

No other adjustment is necessary. Do not turn the adjusting nuts (5C), because that will throw pressure plate out of position and cause the clutch to chatter.

**ASSEMBLING THE CLUTCH**
**(Fig. 3)**

Servicing the Clutch: 1. Remove the transmission and clutch housing. 2. Mark with a punch the flywheel, cover and pressure the plate so that these two parts may be assembled in their same relative position and in the same position on the flywheel. This is important, because

(Continued on Page 12)

## OPEN SIDE COLD ROLLED FORMING MACHINE

**The Yoder Company is presenting to the trade an open-side, cold-rolled forming machine, for which a number of claims are made. It is stated that access to the roller dies is exceptionally easy and that changes may be made with maximum quickness. Compact construction and silence of operation are also claimed. The worm and spur gears run in oil.**

The drive is by V-belt, the motor being inclosed in the base of the machine. The motor may be attached to the end of the machine or connected directly to the worm-drive shaft if preferred.

Each unit is fitted with a roll irrigating device that flushes all rolls and contact points. A separate motor is used, and the flushing compound is collected in a sump welded inside the base. All bearings are supplied with lubrication.

Starting, stopping and reversing buttons are supplied in the electric control box. There is also an inching button to allow the man operating the machine to put material through the machine an inch at a time while the rolls are being adjusted to their proper positions. The push-button control is mounted on a swinging conduit bracket, movable to within easy reach of the operator from whatever position he may be in.

There are bearings at the end of the shafts outside the forming rolls to allow easy adjustment of the roll pressure and to prevent deflection of the shaft at the bearings. A rigid arm is fitted to keep the bearings in alignment. Roll pressure is maintained by means of a rigid back-up support, with an adjustment screw placed over the midline of the forming rolls.

The roller bearings and supports on the end of the shafts may be detached for quick changes of rolls. Wide adjustment of guide rails is possible to accommodate unusually wide material. Between the roll-forming dies are benches, to which are attached the intermediate guiding, supporting and holding down devices.

## POLISHER & FINISHER FOR STEERING WHEELS

**Completion of a 52,000-pound polisher and finisher for steering wheels for the Ford Motor Company by the H. L. Hartley Machine Company of this city is announced.**

The machine measures thirty feet in length, eight feet in height and four feet in width. It will finish 120 steering wheels in an hour. A traveling carrier supports eighteen wheels in the process of operation at all times.

In operating the machine, a man places the wheels on the carrier, fastening them securely with a nut. Drills and lathes scrape the outer and inner edges of the steering wheels until smooth, following which they undergo several buffings until polished on all sides. The wheels return underneath the machine to the start. Eighteen separate motors control the speeds with which the wheels are turned during the various processes.

## FLEXIBLE STEEL RULES

The Stanley Rule and Level Plant is putting out two new low-priced flexible steel rules, with push-pull control and a six-foot blade coiled in a watch-size steel case. They are graduated in sixteenths of an inch. The rule is a concave strip of steel that may be bent in any way needed and yet is ordinarily rigid as a steel bar rule. A hook on the end of the blade permits measuring beyond arm's length. Two types are available, one with a chromium plated steel case and a half-inch wide blade, the other with a nickel plated case and a five-eighths-inch blade.

## CONTROLLING EXPANSION AND CONTRACTION

The practical problems of compensating for the expansion of metal when it is heated by the welding blowpipe, and for the subsequent contraction when the heated metal cools have been subjects of constant study ever since the introduction of the oxy-acetylene process for joining metals. As a result, there have been developed certain precautions or methods of treatment that can be considered as fundamental. A thorough understanding of these constitutes an essential part of the fund of practical information which every welder must possess in order to work efficiently and to carry out intelligently any operation with the blowpipe.

The theory of the expansion and contraction of metals with changes in temperature is based on facts which are easily understood. Heat causes metal to expand, and subsequent cooling necessarily means that the heated section will endeavor to contract into its original size and shape. Uneven heating will, therefore, cause uneven expansion, or uneven cooling will cause uneven contraction. Under such conditions, stresses are set up within the metal. These forces must be alleviated, and unless precautions are taken warping or buckling of the metal takes place. Likewise, on cooling, if nothing is done to take up the stress set up by the contraction forces, further warping may result; or if the surrounding cool sections of the metal are too heavy to permit this change in shape, the stresses remain within the metal itself. Such stresses may cause cracking while cooling or may remain within the metal until further force is applied, as when the piece is put into use.

Due to the fact that sheet metal (¼ inch and less in thickness) has such a large surface area per unit of weight, heat stresses tend to produce warping or buckling of the sheet. This and the contraction effect encountered on long seams are the principal points to be considered in sheet metal welding.

The effect of welding a long seam (over 10 or 12 in.) is to draw the seam together as the weld progresses. The explanation is simple. The spot being welded is melted so rapidly that most of the expansion is taken care of in the molten metal. As the molten spot cools, it contracts and tends to pull the two edges of the seam together. The part previously welded, now cool and solid, resists this action with a consequent hinge effect that pulls the unwelded edges toward each other.

One way of overcoming this effect is to set up the pieces to be welded so the edges are nearly in contact at one end of the seam and separated at the other end a distance that varies according to the metal and its thickness. Some useful data have been compiled that in-

*From Oxy-Acetylene Tips, published by Linde Air Products Company.

(Continued on Page 12)

*Costs at the Lexington are geared to* 1932

Next time you come to New York, register at The Lexington. Only a block from Park Avenue, and less than five minutes walk to the Grand Central station. Quiet, comfort, convenience, economy.

Restaurant prices have been revised...breakfast now 50c, luncheon 65c and dinner $1.00.

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LEXINGTON AVE. AT 48TH ST., NEW YORK CITY

*Located in the Grand Central Zone · Charles E. Rochester, General Manager*

# Major Specifications and Mechanical Details of 1932 Commercial Cars

## LEADING MAKES NATIONALLY DISTRIBUTED

(Continued from Page 8)

| Make and Model | Capacity—Tons or Lbs. | Chassis Price | Engine | Valve Arr'g'm't | No. of Cyls. | Bore and Stroke | Piston Disp. | Tax H. P. | Max. Brake H. P. and Peak R. P. M. | Type Camshaft Drive | Radiator Make | Clutch Make | Universals Make | Steering Gear Make | Carburetor Make | Fuel Feed Type | Make Electr'l System | Transmission Make | No. Spds. For. | Rear Axle Make | Rear Axle Type | Final Drive | Final Gear Reduction | Type Service Brakes | Area Service Brake Lining | Standard Wheel Base | Chassis Wgt. | Standard Tire Sizes Front | Standard Tire Sizes Rear |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Indiana 17 DR | 2 | 2875 | Her | L | 6 | 4⅛x4¾ | 428.4 | 45.9 | 94@2200 | G | Yo | Br-L | Spic | Ross | Str | P | Aut | Br-L | 4 | Wis | 2R | 36.6 | L4IHV | 398 | 170 | 7300 | 30x8.25 | 30x8.25D |
| Indiana 17 W | 2½ | 2875 | Her | L | 6 | 4⅛x4¾ | 428.4 | 45.9 | 94@2200 | G | Yo | Br-L | Spic | Ross | Str | P | Aut | Br-L | 4 | Tim | Wo | 38.1 | L4IHV | 398 | 170 | 7000 | 30x8.25 | 30x8.25D |
| Indiana 19 DR | 3½ | 3400 | Her | L | 6 | 4⅛x4¾ | 428.4 | 45.9 | 94@2200 | G | Yo | Br-L | Spic | Ross | Str | P | Aut | Br-L | 4 | Wis | 2R | 52.3 | L4IHV | 489 | 170 | 8100 | 30x9.00 | 30x9.00D |
| Indiana 17 SBT 250 | 4 | 3250 | Her | L | 6 | 4⅛x4¾ | 428.4 | 45.9 | 94@2200 | G | Yo | Br-L | Spic | Ross | Str | P | Aut | Br-L | 4 | Tim | Sp | 37.8 | L4IHV | 625 | 188 | 8268 | 34x7 | 34x7D |
| *Indiana 17 SW 250 | 4 | 3475 | Her | L | 6 | 4⅛x4¾ | 428.4 | 45.9 | 94@2200 | G | Yo | Br-L | Spic | Ross | Str | P | Aut | Br-L | 4 | Tim | Wo | 38.1 | L4IHV | 625 | 188 | 8500 | 34x7 | 34x7D |
| Indiana 43 DR | 4 | 4300 | Her | L | 6 | 4½x5¼ | 501.0 | 48.6 | 110@2300 | G | Yo | Br-L | Spic | Ross | Str | P | Aut | Br-L | 4 | Wis | 2R | 50.7 | L4IHV | 546 | 170 | 8500 | 30x9.75 | 30x9.75D |
| Indiana 45 DR | 5 | 4800 | Her | L | 6 | 4½x5¼ | 539.6 | 51.3 | 115@2200 | G | Yo | Br-L | Spic | Ross | Str | P | Aut | Br-L | 4 | Wis | 2R | 45.4 | L4IHV | 546 | 170 | 8700 | 30x9.75 | 30x9.75D |
| International A 1 | ¾ | 615 | Wak | L | 4 | 3⅜x4½ | 186.0 | 21.0 | 39@2400 | G | | Mod | Mec | Mec | Ross | Zen | Vac | DR | W-G | 4 | Own | Sp | 39.5 | B4IM | 212 | 136 | *2887 | 5.50x20 | 5.50x20 |
| International A 2 | 1½ | 615 | Wak | L | 4 | 3⅜x4½ | 186.0 | 21.0 | 39@2400 | G | | Mod | Mec | Mec | Ross | Zen | Vac | DR | W-G | 4 | Own | Sp | 39.5 | B4IM | 212 | 136 | 2935 | 6.00x20 | 6.00x20 |
| International B 2 | 1½ | 665 | Wak | L | 4 | 3⅜x4½ | 186.0 | 21.0 | 39@2400 | G | | Mod | Mec | Mec | Ross | Zen | Vac | DR | Mec | 5 | Own | Sp | 47.3 | B4IM | 212 | 136 | 2945 | 6.00x20 | 6.00x20 |
| International A L 3 | 1½ | 1450 | Lyc | L | 6 | 3¼x4½ | 224.0 | 25.3 | 54@2700 | G | | Mod | Own | Mec | Ross | Zen | Vac | DR | W-G | 4 | Own | Sp | 42.9 | B4IM | 295 | 138 | 4032 | 32x6.00 | 32x6.00D |
| International A 3 | 1½ | 795 | Lyc | L | 6 | 3¼x4½ | 224.0 | 25.3 | 54@2700 | G | | Mod | Rock | Mec | Ross | Zen | P | DR | W-G | 4 | Own | Sp | 33.8 | B4IM | 287 | 136 | 3572 | 6.00x20 | 6.00x20 |
| International A 3½ | 1½ | 1250 | Lyc | L | 6 | 3¼x4½ | 224.0 | 25.3 | 54@2750 | G | | Mud | Rock | Mec | Ross | Zen | P | DR | W-G | 4 | Own | Sp | 34.9 | B4IM | 302 | 136 | 3800 | 6.00x20 | 6.00x20D |
| International A 4 | 2 | 1750 | Own | H | 6 | 3⅜x4½ | 279.8 | 31.5 | 67@2600 | G | | Mod | Own | Mec | Ross | Zen | Vac | DR | Own | 5 | Own | Sp | 47.8 | B4IM* | 378 | 145 | 5321 | 32x8 | 32x6D |
| International W 4 | 2½ | 3850 | Hall | H | 4 | 4¼x5½ | 312.0 | 28.9 | 59@3000 | C | | Own | Own | Own | Own | Zen | Vac | RB | Own | 5 | Own | 2R | 69.5 | BO4IM* | 710 | 148 | 8700 | 36x8S | 34x8S |
| International A 5 | 3 | 2350 | Own | H | 6 | 3⅜x4½ | 279.0 | 31.5 | 67@2600 | G | | Mod | Own | Mec | Ross | Zen | Vac | DR | Own | 5 | Own | Sp | 52.6 | B4IM* | 430 | 156 | 5800 | 34x7 | 24x7D |
| International A 6 | 3 | 3475 | Own | H | 6 | 3⅜x4½ | 279.0 | 31.5 | 67@2600 | G | | Mod | Own | Mec | Ross | Zen | Vac | DR | Own | 5 | Own | Sp | 52.5 | B4IM* | 430 | 156 | 6120 | 34x7 | 24x7D |
| International W 5 | 3½ | 4850 | Hall | H | 4 | 4¼x5½ | 390.0 | 36.1 | 69@2000 | C | | Own | Own | Own | Own | Zen | Vac | RB | Own | 5 | Own | 2R | 70.5 | BO4IM* | 794 | 160 | 10125 | 36x8S | 40x12S |
| International A 7 | 5 | 6200 | Own | H | 6 | 4¼x5½ | 525.0 | 48.6 | 98@1800 | G | | Mod | Rock | Mec | Ross | Zen | P | DR | Own | 5 | Own | 2 R | 52.3 | BO4IM-T | 730 | 160 | 11500 | 9.75x20 | 9.75x20D |
| International A 8 | 8 | 6300 | Own | H | 6 | 5 x5½ | 650.0 | 60.0 | 115@1800 | G | | Mod | Rock | Mec | Ross | Zen | P | DR | Own | 5 | Own | 2 R | 52.3 | BO4IM-T | 730 | 160 | 11500 | 9.75x20 | 9.75x20D |
| La France Rep. A 1 | * 6000 | 795 | Lyc | L | 6 | 3 x4¾ | 201.5 | 21.5 | 60@2500 | G | | G&O | Borg | Spic | Han | Zen | Vac | Aut | Ful | 4 | Tim | Sp | 36.1 | L4IH | 378 | 132 | 3000 | 30x5.50 | 32x6 |
| La France Rep. C 1 | * 7500 | 1395 | Lyc | L | 6 | 3¼x4½ | 224.0 | 25.4 | 61@2750 | G | | G&O | Borg | Spic | Han | Zen | Vac | Aut | Ful | 4 | Tim | Sp | 35.8 | L4IH | 413 | 144 | 3300 | 30x6.00 | 32x6 |
| La France Rep. D 1 | * 9000 | 1595 | Lyc | L | 6 | 3¼x4½ | 224.0 | 25.4 | 61@2750 | G | | G&O | Borg | Spic | Han | Zen | Vac | Aut | Ful | 4 | Tim | Sp | 37.9 | L4IH | 448 | 144 | 3725 | 30x5 | 30x5D |
| La France Rep. C 2 | *10000 | 995 | Lyc | L | 6 | 3¼x4½ | 224.0 | 25.3 | 61@2800 | G | | Per | Borg | Spic | Han | Zen | P | Aut | Ful | 4 | Tim | Sp | 35.9 | L4IH | — | 150 | —— | 20x6.00B | 20x6.00DB |
| La France Rep. D 2 | *11500 | 1295 | Lyc | L | 6 | 3⅜x4½ | 242.0 | 27.3 | 65@2800 | G | | Per | Borg | Spic | Han | Zen | P | Aut | Ful | 4 | Tim | Sp | 37.9 | L4IH | — | 162 | —— | 20x6.00B | 20x6.00DB |
| La France Rep. E 1 | *13000 | 1845 | Bud | L | 6 | 3½x4½ | 280.0 | 29.5 | 69@2600 | G | | Per | Borg | Spic | Ross | Zen | Vac | Aut | Ful | 4 | Tim | Sp | 47.0 | L4IHV | 578 | 162 | 5000 | 32x7.50 | 20x7.50D |
| La France Rep. F 1 | *15000 | 2395 | Lyc | L | 6 | 3¾x4½ | 299.0 | 33.7 | 80@2500 | G | | Per | Ful | Spic | Ross | Zen | P | Aut | Ful | 4 | Tim | Sp | 50.6 | L4IHV-T | 656 | 174 | 5433 | 34x7 | 34x7D |
| La France Rep. H 2 | *16000 | 2985 | Lyc | L | 6 | 3¾x5 | 354.0 | 36.0 | 85@2300 | G | | Per | Ful | Spic | Ross | Zen | P | Aut | Ful | 4 | Wis | 3R | 41.6 | L4IHV | 658 | 174 | 6270 | 34x7 | 34x7D |
| La France Rep. H 3 | *18000 | 3195 | Bud | L | 6 | 4¼x4¾ | 393.0 | 42.1 | 94@2400 | G | | Per | Ful | Spic | Ross | Zen | P | Aut | Ful | 4 | Tim | 3R | 54.0 | L4IHV-T | 768 | 179 | 7450 | 20x9.75B | 20x9.75DB |
| La France Rep. M 2 | *20000 | 4800 | Wak | L | 6 | 4⅝x5½ | 462.0 | 46.0 | 97@2000 | G | | Per | Ful | Spic | Ross | Zen | P | Aut | Ful | 5 | Wis | 3R | 51.0 | L4IHV | 768 | 174 | 7500 | 36x8 | 36x8D |
| La France Rep. M 3 | *22000 | 4750 | Wak | L | 6 | 4⅝x5½ | 462.0 | 46.0 | 97@2000 | G | | Per | Ful | Spic | Ross | Zen | P | Aut | Ful | 5 | Tim | 3R | 62.5 | L4IHV-T | 768 | 191 | 8300 | 20x10.50B | 20x10.50DB |
| La France Rep. 35-2 | *24000 | 5800 | Wak | L | 6 | 4½x5¾ | 549.0 | 48.6 | 98@1850 | G | | Own | Ful | Spic | Ross | Zen | P | Aut | Ful | 5 | Wis | 3R | 45.4 | L4IHV | 870 | 174 | 9250 | 38x9 | 38x9D |
| La France Rep. 35-3 | *28000 | 6400 | Wak | L | 6 | 4⅝x5½ | 517.0 | 51.0 | 106@1800 | G | | Per | Ful | Spic | Ross | Zen | P | Aut | Ful | 12 | Tim | 3R | 111.5 | W4IA-T | 1054 | 191 | 10300 | 24x10.50B | 24x10.50DB |
| La France Rep. Q 4 | *30000 | 8300 | Own | H | 12 | 4 x5 | 754.0 | 76.7 | 145@2900 | C | | Own | Long | Bio | Ross | Zen | P | DR | Br-L | 4 | Tim | 2R | Opt | W4IA | — | Opt | 12750 | 24x10.50B | 24x10.50DB |
| La France Rep. Q 5 | *40000 | 11000 | Own | H | 12 | 4 x5 | 754.0 | 76.7 | 140@2900 | C | | Own | Long | Bio | Ross | Zen | P | DR | Br-L | 4 | Tim | 4R | Opt | W6IA-T | — | Opt | 14900 | 20x10.50B | 20x10.50DB |
| ††Mack B L | —— | 2500 | Own | L | 6 | 3¼x5 | 248.9 | 25.3 | 63@2800 | G | | Own | Own | Spic | Gem | Str | Vac | NE | Own | 4 | Tim | Sp | Opt | L4IR | 302 | 148 | *4450 | 32x9.75B | 32x9.75B |
| ††Mack B G | —— | 3000 | Own | L | 6 | 3⅜x5 | 309.6 | 31.5 | 75@2600 | G | | Own | Own | Spic | Own | Str | Vac | NE | Own | 4 | Own | Sp | Opt | O4IV | 415 | 156 | 5200 | 20x6.00B | 20x6.00DB |
| ††Mack A B | —— | 4350 | Own | L | 4 | 4½x5 | 283.7 | 28.9 | 60@2200 | G | | Own | Own | Spic | Own | Str | Gra | NE | Own | 4 | Own | 2 R | Opt | O4IV | 471 | 146½ | 7100 | 32x6 | 32x6D |
| Mack A B | —— | 4000 | Owri | L | 4 | 4½x5 | 283.7 | 28.9 | 60@2200 | G | | Own | Own | Spic | Own | Str | Vac | NE | Own | 4 | Own | Ch | Opt | O4IV | 471 | 146½ | 6850 | 34x7 | 34x7D |
| Mack A B | —— | 4500 | Own | L | 6 | 3⅝x5 | 309.6 | 31.5 | 75@2400 | G | | Own | Own | Spic | Own | Str | Gra | NE | Own | 4 | Own | 2 R | Opt | O4IV | 471 | 146½ | 7050 | 34x7 | 34x7D |
| ††Mack A B | —— | 4150 | Own | L | 6 | 3⅝x5 | 309.6 | 31.5 | 75@2600 | G | | Own | Own | Spic | Own | Str | Vac | NE | Own | 4 | Own | Ch | Opt | O4IV | 471 | 146½ | 6850 | 34x7 | 34x7D |
| ††Mack B C | —— | 5250 | Own | L | 6 | 4 x5½ | 417.7 | 38.4 | 100@2300 | G | | Own | Own | Spic | Own | Str | Vac | NE | Own | 4 | Own | 2 R | Opt | O4IV | 471 | 154 | 8250 | 34x7 | 34x7D |
| ††Mack B C | —— | 5500 | Own | L | 6 | 4 x5½ | 417.7 | 38.4 | 100@2300 | G | | Own | Own | Spic | Own | Str | Vac | NE | Own | 4 | Own | Ch | Opt | O4IV | 610 | 154 | 8500 | 36x8 | 36x8D |
| ††Mack B J | —— | 6150 | Own | L | 6 | 4½x5½ | 525.3 | 48.6 | 126@2200 | G | | Own | Own | Spic | Own | Str | Vac | NE | Own | 4 | Own | 2 R | Opt | O4IV | 567 | 168½ | 10100 | 36x8 | 36x8D |
| ††Mack B J | —— | 5150 | Own | L | 4 | 5 x8 | 471.2 | 40.0 | 77@1800 | G | | Ow- | Own | Spic | Own | Str | Gra | NE | Own | 4 | Own | Ch | Opt | O4IV | 492 | 162 | 9800 | 36x8 | 36x8D |
| ††Mack A K | —— | 5350 | Own | L | 4 | 5 x8 | 471.2 | 40.0 | 77@1800 | G | | Own | Own | Spic | Own | Str | Gra | NE | Own | 4 | Own | 2 R | Opt | O4IV | 492 | 162 | 9700 | 36x58 | 36x5DS |
| ††Mack A C | —— | 4950 | Own | L | 4 | 5 x8 | 471.2 | 40.0 | 77@1800 | G | | Own | Own | Spic | Own | Str | Gra | NE | Own | 4 | Own | Ch | Opt | OJXM | 194 | 156 | 9500 | 36x58 | 36x5DS |
| ††Mack A K | —— | 5450 | Own | L | 6 | 4½x5½ | 525.5 | 48.6 | 126@2200 | G | | Own | Own | Spic | Han | Str | Vac | NE | Own | 4 | Own | 2 R | Opt | O4IV | 492 | 174 | 10950 | 36x58 | 40x5DS |
| ††Mack A C | —— | 5500 | Own | L | 4 | 5 x8 | 471.2 | 40.0 | 77@1800 | G | | Own | Owa | Spic | Han | Str | Gra | NE | Own | 4 | Own | Ch | Opt | OJXM | 194 | 156 | 10100 | 22x10.50B | 22x10.50DS |
| ††Mack A C | —— | 6550 | Own | L | 6 | 4½x5½ | 525.5 | 48.6 | 126@2200 | G | | Own | Own | Spic | Han | Str | Vac | NE | Own | 4 | Own | Ch | Opt | O4IV | 492 | 174 | 11950 | 36x8S | 40x6DS |
| ††Mack A C | —— | 6000 | Own | L | 4 | 5 x6 | 471.2 | 40.0 | 77@1800 | G | | Own | Own | Spic | Own | Str | Gra | NE | Own | 4 | Own | Ch | Opt | OJXM | 194 | 156 | 10450 | 24x10.50B | 24x10.50DB |
| ††Mack A P | —— | 9500 | Own | L | 6 | 5 x6 | 706.5 | 60.0 | 150@2000 | G | | Own | Own | Spic | Own | Str | Gra | NE | Own | 4 | Own | Ch | Opt | O3IV | 287 | 191 | 12200 | 36x78 | 40x7DS |
| ††Mack A K 6—6 wheel | —— | 9500 | Own | L | 6 | 4½x5½ | 525.2 | 48.6 | 126@2200 | G | | Own | Own | Spic | Own | Str | Vac | NE | Own | 4 | Own | 2 R | Opt | O6IA | 574 | 152-52 | 16300 | 36x78 | 40x8DS |
| ††Mack A C 6 wheel | —— | 7650 | Own | L | 4 | 5 x6 | 471.2 | 40.0 | 77@1800 | G | | Own | Own | Spic | Own | Str | Gra | NE | Own | 4 | Own | Ch | Opt | OR1V | 574 | 125-52 | 13800 | 9.75x22B | 5.75x22DB |
| ††Mack A C 6—6 wheel | —— | 9000 | Own | L | 6 | 4½x5½ | 525.2 | 48.6 | 126@2200 | G | | Own | Own | Spic | Own | Str | Vac | NE | Own | 4 | Own | Ch | Opt | O6IA | 574 | 145-52 | 14950 | 36x48 | 40x12S |
| Mack A P 6 wheel | —— | 11500 | Own | L | 6 | 5 x6 | 706.5 | 60.0 | 150@2000 | G | | Own | Own | Spic | Own | Str | Gra | NE | Own | 4 | Own | Ch | Opt | O6IA | 574 | 145-52 | 15250 | 40x8 | 40x8D |
| ††Mack A P 6 wheel | —— | 12000 | Own | L | 6 | 5 x8 | 706.5 | 60.0 | 150@2000 | G | | Own | Own | Spic | Own | Str | Gra | NE | Own | 4 | Own | 2 R | Opt | O6IA | 574 | 145-52 | —— | 40x8 | 40x8D |
| Pierce-Arrow 13S | 2 | 3150 | Own | L | 8 | 3½x5 | 385.0 | 39.2 | 125@2800 | C | | Long | Long | Cle | Han | Str | P | DR | Br-L | 4 | Tim | Sp | 33.3 | B4IM-T | 399 | 160 | 6000 | 20x8.25B | 20x8.25DB |
| Pierce-Arrow 12T | 2-2½ | 2950 | Her | L | 6 | 4⅛x4½ | 361.0 | 40.3 | 77@2400 | G | | Long | Long | Cle | Han | Zen | P | DR | Cla | 4 | Tim | Sp | 34.3 | B4IM | 399 | 150 | 5625 | 20x7.50B | 20x7.50DB |
| Pierce-Arrow 14T | 2½ | 2950 | Her | L | 8 | 3¾x4½ | 298.0 | 33.7 | 70@2600 | G | | Long | Long | Cle | Han | Zen | P | DR | Cla | 4 | Tim | Sp | 40.0 | B4IM | 399 | 150 | 5725 | 20x8.25B | 20x8.25DB |
| Pierce-Arrow 15T | 2½ | 3100 | Her | L | 6 | 4⅛x4½ | 361.0 | 40.3 | 77@2400 | G | | Long | Long | Cle | Han | Zen | P | DR | Cov | 4 | Tim | Sp | 34.4 | B4IM | 399 | 180 | 5800 | 20x8.25B | 20x8.25DB |
| Pierce-Arrow 18W | 3-4 | 4100 | Her | L | 8 | 4⅛x4½ | 361.0 | 40.3 | 77@2400 | G | | Long | Long | Cle | Han | Zen | P | DR | Cov | 4 | Tim | Wo | 41.9 | B4IA-T | 473 | 150 | 6660 | 20x9.00B | 20x9.00DB |
| Pierce-Arrow 18R | 3-4 | 4500 | Her | L | 6 | 4⅜x4¾ | 428.0 | 46.0 | 94@2200 | G | | Long | Long | Cle | Han | Zen | P | DR | Br-L | 4 | Tim | Wo | 38.6 | B4IA | 473 | 150 | 6860 | 20x9.00B | 20x9.00DB |
| Pierce-Arrow 21R | 3½ | 4700 | Her | L | 6 | 4½x5¼ | 501.0 | 48.6 | 110@2200 | G | | Long | Long | Cle | Han | Zen | P | DR | Br-L | 4 | Tim | Wo | 36.0 | B4IA | 473 | 150 | 7050 | 20x9.75B | 20x9.75DB |
| Pierce-Arrow 24X | 4-5 | 5400 | Her | L | 6 | 4½x5¼ | 501.0 | 48.6 | 110@2200 | G | | Long | Long | Cle | Han | Zen | P | DR | Cov | 4 | Tim | Wo | 40.2 | T4IA | 618 | 150 | 9250 | 20x10.50B | 20x10.50DB |
| Pierce-Arrow 24M | 4-5 | 6450 | Her | L | 6 | 4¾x5¾ | 611.0 | 54.1 | 130@2000 | G | | Long | Long | Spic | Ross | Str | P | DR | Own | 4 | Tim | Wo | 39.9 | T4IA-T | 618 | 150 | 10200 | 20x10.50B | 20x10.50DB |
| Pierce-Arrow 28X | 5½ | 6000 | Her | L | 6 | 4½x5¼ | 501.0 | 48.6 | 110@2200 | G | | Long | Long | Cle | Han | Zen | P | DR | Cov | 4 | Own | Wo | 53.0 | TO4IA | 720 | 160 | 10675 | 24x10.50B | 24x10.50DB |
| Pierce-Arrow 28M | 5½ | 6900 | Her | L | 8 | 4¾x5¾ | 611.0 | 54.1 | 130@2000 | G | | Long | Long | Spic | Ross | Str | P | DR | Own | 4 | Own | Wo | 52.5 | TO4IA | 720 | 160 | 11600 | 24x10.50B | 24x10.50DB |
| Pierce-Arrow 28Y | 5½ | 5850 | Her | L | 8 | 4⅝x4¾ | 479.0 | 51.3 | 104@2200 | G | | Long | Long | Cle | Han | Zen | P | DR | Cov | 4 | Own | Wo | 53.0 | TO4IA | 720 | 160 | 10675 | 24x10.50B | 24x10.50DB |
| Pierce-Arrow 24K | 5½ | —— | Her | L | 8 | 4¾x5¾ | 611.0 | 54.1 | 130@2000 | G | | Long | Long | Spic | Ross | Str | P | DR | Own | 4 | Own | Wo | 42.0 | TO4IA | 720 | 170 | 11675 | 24x10.50B | 40x8DS |
| Pierce-Arrow 75M | 75000 | 8000 | Her | L | 8 | 5¼x6 | 779.0 | 66.1 | 150@1800 | G | | Long | Long | Spic | Ross | Str | P | DR | Own | 4 | Own | Wo | 51.9 | TO4IA | 720 | 190 | 13750 | 24x10.50B | 24x10.50DB |
| Pierce-Arrow 24T | *24000 | 3200 | Her | L | 8 | 4⅛x4½ | 36.10 | 40.3 | 77@2400 | G | | Long | Long | Cle | Han | Zen | P | DR | Cov | 4 | Tim | Sp | 48.1 | B4IM | 399 | 150 | 5725 | 20x8.25 | 20x8.25D |
| Pierce-Arrow 35R | *35000 | 4800 | Her | L | 6 | 4⅜x4¾ | 428.0 | 46.0 | 94@2200 | G | | Long | Long | Cle | Han | Zen | P | DR | Br-L | 4 | Tim | Wo | 47.8 | B4IA | 473 | 150 | 7050 | 20x9.75 | 30x9.75D |
| Pierce-Arrow 45X | *45000 | 6200 | Her | L | 6 | 4½x5¼ | 501.0 | 48.6 | 110@2200 | G | | Long | Long | Cle | Han | Zen | P | DR | Cov | 4 | Tim | Wo | 57.2 | T4IA | *618 | 160 | 9100 | 20x10.50 | 20x10.50D |
| Pierce-Arrow 34L | *34000 | —— | Her | L | 6 | 4½x5¼ | 501.0 | 48.6 | 110@2200 | G | | Long | Long | Cle | Han | Zen | P | DR | Cov | 4 | Tim | Wo | 49.0 | T6IA | 1022 | 200 | 13200 | 20x9.75 | 20x9.75D |
| Pierce-Arrow 44K | *44000 | —— | Her | L | 6 | 5¼x6 | 779.0 | 66.1 | 150@1800 | G | | Long | Long | Spic | Ross | Str | P | DR | Own | 4 | Tim | Wo | 47.2 | T6IA | 1022 | 200 | 14500 | 20x10.50 | 20x10.50D |
| Pierce-Arrow 34K | *34000 | —— | Her | L | 6 | 4¾x5¾ | 611.0 | 54.1 | 130@2000 | G | | Long | Long | Spic | Ross | Str | P | DR | Own | 4 | Tim | Wo | 49.6 | T6IA | 1022 | 200 | 14200 | 20x9.75 | 20x9.75D |
| Reo 1 A | 1½ | 625 | Own | L | 4 | 3⅛x4½ | 205.9 | 23.3 | 51@2500 | G | | Per | Long | Cle | Ross | Zen | P | DR | Cla | 4 | Cla | Sp | 37.1 | L4IH | 230 | 136 | 2930 | 20x6.00 | 32x6 |
| Reo 1 B | 1½ | 725 | Own | L | 6 | 3⅛x4 | 214.7 | 27.3 | 61@3000 | G | | Per | Long | Cle | Ross | Zen | P | DR | Cla | 4 | Cla | Sp | 33.6 | L4IH | 230 | 136 | 2970 | 20x6.00 | 32x6 |
| Reo 1 C | 1½ | 665 | Own | L | 4 | 3⅛x4½ | 205.0 | 23.3 | 51@2500 | G | | Per | Long | Cle | Ross | Zen | P | DR | Cla | 4 | Cla | Sp | 37.1 | L4IH | 230 | 160 | 3020 | 20x6.00 | 32x6 |
| Reo 1 B | 1½ | 745 | Own | L | 6 | 3⅛x5 | 230.0 | 23.4 | 68@2800 | C | | Own | Long | Cle | Ross | Zen | P | DR | Cle | 4 | Own | Sp | 34.8 | L4IH | 346 | 140 | 2970 | 20x6.00B | 32x6 |
| Reo 1 D | 1½ | 765 | Own | L | 6 | 3⅜x4 | 214.7 | 27.3 | 61@3000 | G | | Per | Long | Cle | Ross | Zen | P | DR | Cla | 4 | Cla | Sp | 37.1 | L4IH | 230 | 160 | 3060 | 20x6.00 | 32x6 |
| Reo D F X | 1½ | 1095 | Own | L | 6 | 3⅜x5 | 268.3 | 27.3 | 85@3200 | C | | Own | Long | Cle | Ross | Sch | Vac | DR | Own | 4 | Own | Sp | 34.1 | L4IH | 289 | 135 | 3200 | 20x6.00 | 20x6.00 |
| Reo F A X | 2 | 1295 | Own | L | 6 | 3⅜x5 | 268.3 | 27.3 | 70@2800 | C | | Own | Br-L | Cle | Ross | Sch | Vac | DR | Own | 4 | Own | Sp | 34.3 | L4IH | 289 | 137 | 3525 | 20x6.00 | 32x6 |
| Reo F E X | 2 | 1395 | Own | L | 6 | 3⅜x5 | 268.3 | 27.3 | 70@2800 | C | | Own | Br-L | Cle | Ross | Sch | Vac | DR | Own | 4 | Own | Sp | 34.3 | L4IH | 289 | 152 | 3200 | 20x6.00 | 32x6 |
| Reo F F X | 2 | 1395 | Own | L | 6 | 3⅜x5 | 268.3 | 27.3 | 70@2800 | C | | Own | Br-L | Cle | Ross | Sch | Vac | DR | Own | 4 | Own | Sp | 34.3 | L4IH | 289 | 156 | 3525 | 20x6.00 | 32x6 |
| Reo F H X | 2½ | 1595 | Own | L | 6 | 3⅜x5 | 268.3 | 27.3 | 70@2800 | C | | McC | Br-L | Cle | Ross | Sch | Vac | DR | Own | 4 | Own | Sp | 37.7 | L4IH | 289 | 142 | 3750 | 32x6 | 32x6D |
| Reo F C X | 2½ | 1645 | Own | L | 6 | 3⅜x5 | 268.3 | 27.3 | 70@2800 | C | | McC | Br-L | Cle | Ross | Sch | Vac | DR | Own | 4 | Own | Sp | 37.7 | L4IH | 289 | 152 | 4165 | 32x6 | 32x6D |
| Reo F D X | 2½ | 1745 | Own | L | 6 | 3⅜x5 | 268.3 | 27.3 | 70@2800 | C | | McC | Br-L | Cle | Ross | Sch | Vac | DR | Own | 4 | Own | Sp | 37.7 | L4IH | 289 | 168 | 4075 | 32x6 | 32x6D |
| Reo G A | 3 | 2035 | Own | L | 6 | 3⅜x5 | 268.3 | 27.3 | 70@2800 | C | | McC | Br-L | Cle | Ross | Sch | Vac | DR | Own | 4 | Own | Sp | 40.5 | L4IH-T | 344 | 163 | 4625 | 32x6 | 32x6D |
| Reo G C | 3 | 2140 | Own | L | 6 | 3⅜x5 | 268.3 | 27.3 | 70@2800 | C | | McC | Br-L | Cle | Ross | Sch | Vac | DR | Own | 4 | Own | Sp | 40.5 | L4IH-T | 344 | 179 | 4850 | 32x6 | 32x6D |
| Reo G D | 3 | 2085 | Own | L | 6 | 3⅜x5 | 268.3 | 27.3 | 70@2800 | C | | McC | Br-L | Cle | Ross | Sch | Vac | DR | Own | 4 | Own | Sp | 78.1 | L4IH-T | 344 | 144 | 4650 | 32x6 | 32x6D |
| Reo G C S | 3 | 2375 | Own | L | 6 | 3⅜x5 | 268.3 | 27.3 | 70@2800 | C | | McC | Br-L | Cle | Ross | Sch | Vac | DR | Own | 4 | Own | Sp | 40.5 | L4IH | 344 | 210 | 5300 | 32x6 | 32x6D |
| Reo 4-H | 4 | 2800 | Own | L | 6 | 4⅛x4¾ | 381.0 | 40.8 | 101@2600 | G | | McC | Long | Cle | Ross | Sch | P | DR | Own | 4 | Cla | Sp | 42.4 | L4IMV-T | 390 | 150 | 6150 | 8.25x20 | 9.00x20B |
| Reo 4-J | 4 | 2875 | Own | L | 6 | 4⅛x4¾ | 381.0 | 40.8 | 101@2600 | G | | McC | Long | Cle | Ross | Sch | P | DR | Own | 4 | Cla | Sp | 42.4 | L4IHV-T | 390 | 170 | 6280 | 8.25x20 | 9.00x20B |
| Reo 4-K | 4 | 2950 | Own | L | 6 | 4⅛x4¾ | 381.0 | 40.8 | 101@2600 | G | | McC | Long | Cle | Ross | Sch | P | DR | Own | 4 | Cla | Sp | 42.4 | L4IHV-T | 390 | 190 | 6395 | 8.25x20 | 9.00x20B |
| Stewart 30 | 1 | 695 | Lyc | L | 4 | 3¾x4½ | 199.0 | 22.5 | 50@2600 | G | | Fed | Borg | Spic | Ross | Str | P | DR | W-G | 4 | Cla | Sp | 35.1 | B4IM | 257 | 130 | *3158 | 20x6.50 | 20x6.50 |
| Stewart 30 X | 1 | 795 | Lyc | L | 6 | 3 x4¾ | 201.5 | 33.8 | 60@2800 | G | | Fed | Borg | Spic | Ross | Str | P | DR | W-G | 4 | Cla | Sp | 35.1 | B4IM | 257 | 130 | 3199 | 20x6.50 | 20x3.50 |
| Stewart 42X | 1½ | 795 | Lyc | L | 6 | 3¼x4½ | 224.0 | 25.3 | 62@2600 | G | | Fed | Borg | Spic | Ross | Zen | P | DR | W-G | 4 | Cla | Sp | 35.1 | B4IM | 257 | 134 | 3525 | 20x6.50 | 20x6.50 |
| Stewart 40 X A | 1½ | 995 | Lyc | L | 6 | 3¼x4½ | 224.0 | 25.3 | 62@2600 | G | | Fed | Borg | Spic | Ross | Zen | P | DR | W-G | 4 | Cla | Sp | —— | B4IM | 257 | 145 | 3574 | 20x6.50 | 20x6.50D |
| Stewart 45X | 2 | 995 | Lyc | L | 6 | 3¼x4½ | 242.0 | 27.3 | 62@2800 | G | | Fed | Borg | Spic | Ross | Zen | P | DR | W-G | 4 | Cla | Sp | 35.1 | B4IM | 257 | 145 | 4375 | 20x6.50 | 20x6.50DB |
| Stewart 50X | 2 | 1195 | Lyc | L | 6 | 3⅜x4½ | 242.0 | 27.3 | 65@2800 | G | | Fed | Borg | Spic | Ross | Zen | P | DR | W-G | 4 | Cla | Sp | 35.1 | B4IM | 257 | 145 | 4165 | 20x6.50 | 20x6.50DB |
| Stewart 29 X S | 2 | 1695 | Lyc | L | 6 | 3¾x4½ | 298.0 | 33.7 | 85@2750 | G | | Fed | Ful | Spic | Ross | Str | P | DR | Ful | 4 | Cla | Sp | 44.1 | B4IM | 307 | 145 | 5194 | 20x7.00 | 20x7.00D |
| Stewart 32 X | 2½ | 1990 | Lyc | L | 6 | 3¾x4½ | 298.0 | 33.7 | 85@2750 | G | | Fed | Ful | Spic | Ross | Str | P | DR | Ful | 4 | Cla | Sp | 46.1 | B4IM | 344 | 165 | 6552 | 20x7.00 | 20x7.00D |
| Stewart 58-8 | 2½ | 2390 | Lyc | L | 8 | 3⅜x4½ | 322.0 | 36.5 | 100@2800 | G | | Fed | Ful | Spic | Ross | Str | P | DR | Ful | 4 | Cla | Sp | 46.1 | B4IM | 348 | 170 | 6170 | 20x7.50 | 20x7.50DB |
| *Stewart 18 X | 3 | 2690 | Lyc | L | 6 | 3⅞x5 | 310.0 | 36 | 85@2750 | G | | Fed | Ful | Spic | Ross | Str | P | DR | Ful | 4 | Tim | Wo | 48.1 | B4IM | 452 | 165 | 6245 | 20x7.50 | 20x7.50D |
| Stewart 48-8 | 3 | 2990 | Lyc | L | 8 | 3¾x4¾ | 420.0 | 45.0 | 130@2800 | G | | Fed | Br-L | Spic | Ross | Str | P | DR | Br-L | 4 | Cla | Sp | 46.1 | B4MV | 348 | 170 | 6750 | 8.25x20B | 8.25x20DB |
| Stewart 19 X | 3½ | 3690 | Lyc | L | 8 | 3⅞x5 | 354.0 | 36.2 | 90@2750 | G | | Fed | Ful | Spic | Ross | Str | P | DR | Ful | 12 | Tim | Wo | 105.1 | B4IM | 452 | 165 | 7474 | 20x9.00 | 20x9.00D |
| Stewart 38-8 | 3½ | 3950 | Lyc | L | 8 | 3¾x4¾ | 462.0 | 45.0 | 130@2800 | G | | Fed | Borg | Spic | Ross | Str | P | DR | Br-L | 12 | Tim | 2R | 105 1 | B4IMV | 452 | 170 | 7964 | 20x9 00 | 20x9.00D |
| Stewart 38-6 | 3½ | 3990 | Wak | L | 6 | 4⅜x5¼ | 420.0 | 45.9 | 100@2000 | G | | Fed | Borg | Spic | Ross | Str | P | DR | Br-L | 12 | Tim | 2R | 105.1 | B4IMV | 452 | 170 | 7964 | 20x9.00 | 20x9.00D |
| Stewart 31 X | 5 | 5190 | Wak | L | 6 | 4⅜x5½ | 516 | 51.2 | 110@2000 | G | | Mod | Br-L | Spic | Ross | Str | P | DR | Br-L | 12 | Tim | Wo | 105.1 | B4IMV | 564 | 165 | 9885

# THIS TRUCK FLEET OPERATOR SAVES 15% ON MAINTENANCE

By JAMES R. LOWELL

Adherence to a maintenance system based on mileage for servicing and overhaul work and the adoption of special metal bodies especially constructed to stand the jarring of rough country roads have enabled the Columbus Baking Company, Inc., Columbus, Neb., to save approximately 15 per cent. in repairs, replacements, tires, fuel and loss of truck service over haphazard maintenance methods in the past two years, according to H. M. Martyn, who has charge of distribution and sales.

Rough and unimproved country roads make up more than 90 per cent. of the routes covered by the Columbus fleet of trucks, consisting of six model A 1½-ton trucks, a Dodge of the same capacity and a ¾-ton model A. The territory has been divided into seven truck routes, while the eighth vehicle is held at the plant as an emergency truck for delivery of special orders, making pick-ups and as a substitute for the route trucks when they are in the shop for repairs and periodical overhauls.

The routes vary from approximately fifty to 150 miles per day per truck, and, as road conditions encountered by each truck are similar, Mr. Martyn has arranged for periodical inspections and overhauls, to be made on a mileage rather than a time basis. To make this method effective, each driver fills out a daily card calling attention to needed service or repairs, as well as mileage, and this information is transferred every afternoon to a master sheet maintained in the company's office.

In developing this system Mr. Martyn kept a record for each truck over a period of three months. Part of the trucks were driven at top speed where it was possible between towns and others at thirty-five to forty miles per hour. Tires were checked on a designated number of the trucks when they appeared to need air, while on others tire pressure was checked each day. Oil consumption records also were kept, while a comparison of the condition of the various units, such as the engine, brakes, steering gear, electrical equipment, etc., was made by use of the exceptionally complete records.

A study of these records led to the adoption of a system wherein trucks are greased and the oil changed every week. Every 1,200 miles the trucks are taken to the service departments of their respective dealers for an inspection. Any defects or needed repairs reported by the drivers on their daily report cards are corrected immediately. Unit overhauls are made every 30,000 miles. Tires are checked every day, and drivers are instructed not to exceed forty miles per hour between towns.

"On many of the units the overhaul is only cursory in nature," said Mr. Martyn, "as such parts as the starter, clutch and other units not receiving heavy wear on the long country routes usually do not need complete overhauling after only 30,000 miles of service. Other parts, especially steering gears which are subjected to the constant jarring of unimproved roads, have to be watched more closely. In all cases, however, we find it better to overhaul units and replace worn parts than to wait for more serious trouble to develop. Our experience has proved this policy to be more economical also."

Due to the type of roads encountered, the problem of securing dustproof, durable bodies has been a major one. Ordinary panel jobs with built-in cabs were costly to maintain and hard to keep looking at their best, while special built wooden bodies were prone to jar loose at the joints quickly. The problem has been solved, according to Mr. Martyn, by having metal bodies built by an Omaha body factory to the bakery's specifications.

These special bodies are dust and draft proof and provide easy access for the driver. Sides are constructed of galvanized iron, while the floors and tops are made of oak, the latter being covered with treated canvas. The metal is mounted over an oak frame, the whole being heavily ironed at all joints and corners. The bodies will last a lifetime, according to Mr. Martyn, and while they cost from a third to a half more than the ordinary wooden bodies and weigh approximately a half more, he declares that their durability and ease of maintenance much more than offset the two drawbacks mentioned.

Three-fourths of the body space is equipped for hauling bread and is accessible from the rear, where a step has been provided. Sliding shelves can be pulled out when loading and pushed in as the loading progresses. The trays which fit into the shelves rest on strips of rubberized fabric, which eliminates much of the jarring of the baked goods on rough roads. The front end of the body, comprising a third of the space, is arranged as a special compartment for cakes and pastries. The trays are protected against jarring, the same as in the main compartment.

"The special construction of these bodies enables our company to effect a material saving in body maintenance," said Mr. Martyn, "as they can be dismounted from the chassis in a minimum of time, and will stand up under the most severe road conditions indefinitely. The ease with which they can be dismounted does away with the necessity of leaving a truck at the garage for body repairs or painting, as was the case with the original panel jobs with their built-in cabs. When one of our special bodies needs painting, we take it off in a jiffy, put on a spare body, and the vehicle is ready to go back on its route. The bodies are easily detached from or mounted on either the Dodge or Ford chassis."

Mr. Martyn said that the use of the special metal bodies has not only meant a saving in maintenance costs, but has enabled the company to keep its bodies much more attractive in appearance than was possible with the old bodies. "A truck body serves in a dual capacity in the bakery business," he declared, "serving as a traveling billboard as well as a means of distributing our goods. The ease with which the special bodies can be painted has resulted in the more attractive appearances of our traveling billboards."

The Columbus bakery was established four years ago as the first wholesale bakery in a county seat of nearly 8,000 inhabitants. In the brief span of four years it has acquired about 50 per cent. of all wholesale bakery sales in the small towns within a radius of forty miles of Columbus, in addition to approximately 90 per cent. of the business in the county seat itself. This business has necessitated the delivery of nearly 5,000,000 loaves of bread, not to mention cakes and pastries, and, according to Mr. Martyn, it has been necessary to hold delivery costs to a minimum in order to make this remarkable showing in the face of longer-established competition from companies which operated in the territory from neighboring large towns. This competition, along with the rough and unimproved country roads over which the company's trucks must travel, has necessitated the development of an efficient delivery system and conomical maintenance methods.

## TEST NEW BUS FOR SERVICE IN WORCESTER

**Worcester, Mass.**, May 26.—Officials of the Worcester Consolidated inspected a new bus yesterday which they had been discussing putting in service. Executives are perfecting a plan to tie up the Lincoln Street and Prospect Park lines in a bus route.

Daniel W. Lincoln, a receiver; Howard R. Whitney, general manager; Joseph L. Tully, superintendent, and Angus J. MacPherson, master mechanic, made a test trip in the bus. Entirely different from the buses now in operation, this vehicle has every convenience of a trolley car and additional advantages.

The new buses seat forty passengers, and have a maximum capacity of fifty-six.

### MASS. TRUCK CLUB LOSES ITS RAILROAD PROTEST

**Boston, Mass.**, May 26.—The State Department of Public Utilities has dismissed the protest of the Motor Truck Club of Massachusetts against the schedule of rates for pick up and delivery service filed recently by the Boston & Maine Railroad Company. The pickup and delivery service by the road is undertaken with a view of giving better service in the matter of small shipments.

# Major Specifications and Mechanical Details of 1932 Commercial Cars

## LEADING MAKES NATIONALLY DISTRIBUTED

(Continued from Page 10)

| Make and Model | Capacity—Tons or Lbs. | Chassis Price | Engine | Valve Arr'g'm't | No. of Cyls. | Bore and Stroke | Piston Disp. | Tax H. P. | Max. Brake H. P. and Peak R. P. M. | Type Camshaft Drive | Radiator Make | Clutch Make | Universals Make | Steering Gear Make | Carburetor Make | Fuel Feed Type | Make Electr'l System | Make Transmission | No. Spds. For. | Rear Axle Make | Type | Final Drive | Final Gear Reduction | Type Service Brakes | Area Service Brake Lining | Standard Wheel Base | Chassis Wgt. | Standard Tire Sizes Front | Rear |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| White 621 | *18000 | 4650 | Own | H | 6 | 4 x5¼ | 396.0 | 38.4 | 82@1800 | C | Own | Own | Spic | Ross | Zen | P | DR | Own | 4 | Own | Sp | 41.4 | OL4IHV | | 484 | 157 | 7700 | 20x9.00B | 20x9.00DB |
| White 640 | *20000 | 6100 | Own | H | 6 | 4⅜x5¾ | 519.0 | 45.9 | 108@1800 | C | Own | Own | Spic | Ross | Zen | P | L-N | Own | 4 | Own | Sp | 33.9 | O4IA | | 553 | 160 | 9200 | 20x9.00B | 20x9.00DB |
| White 630 | *20000 | 5000 | Own | H | 6 | 4 x5¼ | 396.0 | 38.4 | 82@1800 | C | Own | Own | Spic | Ross | Zen | P | DR | Own | 4 | Own | Sp | 41.4 | O4IHV | | 554 | 168 | 8500 | 20x9.00B | 20x9.00DB |
| White 58 | *22000 | 4400 | Own | L | 4 | 4¼x5¾ | 326.0 | 28.9 | 54@1600 | G | Own | Own | Spic | Own | Zen | Vac | Eis | Own | 4 | Own | 2R | 49.7 | OPXM | | 224 | 180 | 7797 | 36x5 | 36x5SD |
| White 630 A | *22000 | 5000 | Own | H | 6 | 4 x5¼ | 396.0 | 38.4 | 100@2100 | C | Own | Own | Spic | Ross | Zen | P | DR | Own | 4 | Own | Sp | 41.4 | L4IHV | | 553 | 168 | 8500 | 20x9.00B | 20x9.00DB |
| White 640 | *24000 | 6450 | Own | H | 6 | 4⅜x5¾ | 519.0 | 45.9 | 108@1800 | C | Own | Own | Spic | Ross | Zen | P | L-N | Own | 4 | Own | 2R | 46.9 | O4IA | | 585 | 180 | 9700 | 20x9.75B | 20x9.75DB |
| *White 630 SW200 | *24000 | 6280 | Own | H | 6 | 4 x5¼ | 396.0 | 38.4 | 82@1800 | C | Own | Own | Spic | Ross | Zen | P | DR | Own | 4 | Tim | Wo | 44.2 | OTIHV | | 514 | 193 | 10000 | 20x8.25B | 20x8.25DB |
| White 631 | *24000 | 5750 | Own | H | 6 | 4 x5¼ | 396.0 | 38.4 | 82@1800 | C | Own | Own | Spic | Ross | Zen | P | DR | Own | 4 | Own | 2R | 56.9 | O4IHV | | 585 | 168 | 9000 | 20x9.25B | 20x9.25DB |
| *White 642 SW310 | *34000 | 8045 | Own | H | 6 | 4½x5¾ | 519.0 | 45.9 | 108@1800 | C | Own | Own | Spic | Ross | Zen | P | L-N | Own | 4 | Tim | Wo | 55.6 | OTIA | | 588 | 198 | 12670 | 20x9.00B | 20x9.00DB |
| White 58 SS | *30000 | 5300 | Own | L | 4 | 4¼x5¾ | 326.0 | 28.9 | 54@1600 | G | Own | Own | Spic | Ross | Zen | P | L-N | Own | 4 | Own | Wo | 77.6 | OPXM | | 224 | 196 | 9300 | 24x10.50B | 24x10.50DB |
| White 643 | *32000 | 6950 | Own | H | 6 | 4½x5¾ | 519.0 | 45.9 | 108@1800 | C | Own | Own | Spic | Ross | Zen | P | L-N | Own | 4 | Own | 2R | 66.5 | O4IA | | 623 | 180 | 10900 | 24x10.50B | 24x10.50DB |
| White 642 | *28000 | 6750 | Own | H | 6 | 4½x5¾ | 519.0 | 45.9 | 108@1800 | C | Own | Own | Spic | Ross | Zen | P | L-N | Own | 4 | Own | 2R | 66.5 | O4IA | | 623 | 180 | 10600 | 24x9.75B | 24x9.75DB |
| *White 643 SW410 | *40000 | 8570 | Own | H | 6 | 4½x5¾ | 519.0 | 45.9 | 108@1800 | C | Own | Own | Spic | Ross | Zen | P | L-N | Own | 4 | Tim | Wo | 69.1 | OTIA | | 588 | 198 | 14400 | 40x8 | 40x8D |
| Willys-Overland 6-C-113 | ½ | 415 | Own | L | 6 | 3¼x3⅞ | 193.0 | 25.3 | 65@3400 | C | Fed | Own | Spic | Own | Til | P | Aut | Own | 3 | Own | Sp | 12.4 | B4IM | | 143 | 113 | 1924 | 20x5.50 | 32x6 |
| Willys-Overland 6-C-131 | 1½ | 595 | Own | L | 6 | 3¼x3⅞ | 193.0 | 25.3 | 65@3400 | C | Fed | Own | Spic | Own | Til | P | Aut | W-G | 4 | Cla | Sp | 40.8 | B4IM | | 235 | 131 | 2675 | 20x5.50 | 32x6 |
| WillysOverland 6-C-157 | 1½ | 635 | Own | L | 6 | 3¼x3⅞ | 193.0 | 25.3 | 65@3400 | C | Fed | Own | Spic | Own | Til | P | Aut | W-G | 4 | Cla | Sp | 40.8 | B4IM | | 235 | 157 | 2900 | 19x5.00 | 19.x5.9 |

## GENERAL NOTATIONS

***†REFERENCE MARKS** apply to individual lines only and explanations are given under the subdivision for each company in the "SPECIAL NOTATIONS."

**CAPACITIES** given in this table are in tons or fractions of tons. *Shows maximum allowable gross weight in pounds.

**ENGINE**—Bud, Buda; Con, Continental; Her, Hercules; Lyc, Lycoming; Pont, Pontiac; Wak, Waukesha; Wis, Wisconsin; Hall, American Car & Foundry; Ster, Sterling Engine Co.

**VALVE ARRANGEMENT**—L, "L" head; H, in head; O, overhead; S, sleeve.

**TYPE OF CAMSHAFT DRIVE**—G, ...r; C, chain.

**RADIATOR MAKE**—G&O, G & O Mfg. Co.; Per, Perfex Corp.; Long, Long Mfg. Co.; Har, Harrison Radiator Corp.; Fed, Fedders Mfg. Co.; McC, McCord Radiator & Mfg. Co.; Mod, Modine Mfg. Co.; Hex, Hexcel Radiator Co. Yo-Young.

**CLUTCH MAKE**—Jon, Jones Clutch & Gear Co.; Ful, Fuller & Sons Mfg. Co.; Borg, Borg & Beck Co.; Br-L, Brown Lipe Gear Co.; Rock, Rockford Drill & Machine Co.; Cov, Covert Gear Co.; Long, Long Mfg. Co.; Detr, Detroit Gear & Machine Co.; Mer, Merchant & Evans; Hel, Merchants & Evans.

**UNIVERSALS MAKE** — Spic, Spicer Mfg Co.; Blo, Blood Bros. Machine Co.; Sup, Superior Universal Products; Un, Universal Products Co.; Cle, Cleveland Steel Products Corp.; Pet, Peters; Opt, optional; Mec, Mechanics Machine Co.

**STEERING GEAR MAKE**—Ross, Ross Gear & Tool Co.; Han, Hannum Mfg. Co. Sag, Saginaw Steering Gear Co.; Gem, Gemmer Mfg. Co.; Col, Columbus Gear Pump Co.; W-G, Warner Gear Corp.

**CARBURETOR**—Car, Carter; Mar, Marvel; Sch, Wheeler-Schebler; Str, Strombere; DL, Detoit Lubricator; Til, Tillotson; Zen, Zenith-Detroit.

**FUEL FEED**—Gra, gravity; Vac, vacuum tank, P, fuel pump.

**ELECTRICAL SYSTEM** — AB, American-Bosch; Aut, Electric Auto-Lite; Eis, Eisemann; L-N, Leece-Neville; NE, North East; RB Robert Bosch; DR, Delco-Remy.

**TRANSMISSION**—Br-L, Brown-Lipe; Cov, Covert; Ful, Fuller; Mec, Mechanics Machine; Mun, Muncie; W-G, Warner Gear; Cot, Cotta Gear Co.; Cle, Clark Equipment Co.

**REAR AXLE**—Cla, Clark Equipment; Col, Columbia; Eat, Eaton; Pont, Pontiac; Sal, Salisbury; Tim, Timken; Wis, Wisconsin.

**FINAL DRIVE**—IG, internal gear; St, straight bevel; Sp, spiral bevel; Wo, worm; 2R, double reduction; Ch, chain; S-T, semi-transverse.

**TYPE OF SERVICE BRAKES—**

B4IM, Bendix, 4 wheel, internal mechanical; B4MV, Bendix, 4 wheel, mechanical, vacuum; B6IA, Bendix, 6 wheel, internal, air; B4IMV, Bendix, 4 wheel, internal mechanical, vacuum; BO4IMV, Bendix, own, 4 wheel, internal, mechanical, vacuum; BrIA, Bendix, operating on 4 rear wheels, internal air; BW4IM, Bendix front, Wisconsin rear, 4 wheel, internal, mechanical; BE4IM, Bendix front, Eaton rear, 4 wheel, internal, mechanical; B4IH, Bendix, 4 wheel, internal, hydraulic.

CB4IM, Columbia, Bendix, 4 wheel, internal, mechanical; C4IM, Columbia, 4 wheel, internal, mechanical; K2IM, Clark, 2 wheel, internal, mechanical; CR4IA, Christensen-Relay, 4 wheel internal, air.

L4IHVA, Lockheed, 4 wheel, internal, hydraulic, vacuum, air; LO4ID, Lockheed, own, 4 wheel, internal, drive shaft; LO4IV, Lockheed, own, 4 wheel, internal, vacuum; LT4IDV, Lockheed, Timken, 4 wheel, drive shaft, vacuum; L4IH, Lockheed, 4 wheel, internal, hydraulic; L4IHA, Lockheed, 4 wheel, internal, hydraulic, air; L4IHV, Lockheed, 4 wheel, internal, hydraulic, vacuum; LT4IHV, Lockheed, Timken, 4 wheel, internal, hydraulic, vacuum; LT4IVA, Lockheed, Timken, 4 wheel, internal, vacuum, air; L6IHV, Lockheed, 6 wheel, internal, hydraulic, vacuum; L6IH, Lockheed, 6 wheel, internal, hydraulic.

O2IM, Own, 2 wheel, internal, mechanical; O2IV, Own, 2 wheel, internal, vacuum; O4IA, Own, 4 wheel, internal, air; O4IH, Own, 4 wheel, internal, hydraulic; O4IHV, Own, 4 wheel internal, hydraulic, vacuum; O4IM, Own, 4 wheel, internal, mechanical; O4IV, Own, 4 wheel, internal, vacuum; O4M, Own, 4 wheel, mechanical; O2XM, Own, 2 wheel, external, mechanical; O4XM, Own, 4 wheel external, mechanical; O6IA, Own, 6 wheel, internal, air; OJXM, Own, jack shaft, external, mechanical; OL4IHV, Own, Lockheed, 4 wheel, internal, hydraulic, vacuum; OPX, Own, propeller shaft, external; OPXM, Own, propeller shaft, external, mechanical; OPM, Own, propeller shaft, mechanical; ORIV, Own, rear wheels, internal, vacuum; OT1HV, Own Timken, internal, hydraulic, vacuum.

S4IM, Steeldraulic, 4 wheel, internal, mechanical.

T4rIA, Timken, operating on 4 rear wheels, internal, air; T4IA, Timken, 4 wheel, internal, air; T6IA, Timken, 6 wheel, internal, air; T2IMV, Timken, 2 wheel, internal, mechanical, vacuum.

W4I, Westinghouse, 4 wheel, internal; W4IA, Westinghouse, 4 wheel, internal, air; W6IA, Westinghouse, 6 wheel, internal, air; 4IA, 4 wheel, internal, air; 4IH, 4 wheel, internal, hydraulic; 4M, 4 wheel, mechanical.

-T, Tru-stop. *Models on which Tru-stop is optional.

**WHEEL BASES** given are standard, but optional wheel bases are available in many cases.

**"CHASSIS WEIGHT according to Automotive Daily News formula, which is the chassis with gas, oil, water and spare tire, but without cab or other equipment

**TIRES**—B, balloon; D, dual; S, solid; P, pneumatic

## SPECIAL NOTATIONS

### AUTOCAR

†Engines in these models are located under the driver's seat.

*Six-wheeler.

Model R also available on 171 and 189 inches wheel base.

### BROCKWAY

*Models equipped with twin ignition.

### CHEVROLET

Utility model availale on 131-inch wheel base with chassis weight of 2,760 pounds and equipped with dual rear wheels.

### DIAMOND T

*Six-wheelers.

Additional standard wheel bases available as follows:—

| | | | |
|---|---|---|---|
| 551 | 158 | 750 | 167, 192 |
| 504 | 166½ | 801 | 180½, 199¼ |
| 506 | 174 | 1200 | 174½, 180 |
| 603 | 157, 179 | 1600 | 174½, 180 |
| 606 | 177½ | 1601 | 184 |

### DODGE

*Models F40, F41, F61 and F62 can be had with double drop frame.

### FEDERAL

*Six-wheelers.

*Also rated in pounds of total allowable weight as follows:

| | | | |
|---|---|---|---|
| D 3 | 8500 | T 10 W | 18,000 |
| E 3 | 8,500 | T 10 D R | 18,000 |
| F 7 | 10,000 | U 6 | 21,000 |
| F 8 | 11,500 | U 6 D R | 21,000 |
| A 6 | 13,500 | A 6 S W | 18,500 |
| A 6 T | 15,000 | C 7 | 24,000 |
| A 6 T W | 15,000 | C 7 W | 24,000 |
| T 3 W | 14,000 | C 8 | 24,000 |
| T 8 W F | 15,000 | C 8 W | 24,000 |
| D 2 S W | 12,500 | X 6 | 30,000 |
| E 2 S W | 12,500 | X 6 D R | 30,000 |
| D 2 D | 12,500 | X 8 R | 30,000 |
| 2 E D | 12,500 | X 8 R D R | 30,000 |
| T 10 B | 16,000 | | |

†Both the four and six cylinder are also offered in 157-inch wheel ase at $1,145 and $1,345, respectively.

Model T 10 SW also available in 206 and 224 inch wheel bases.

### GENERAL MOTORS TRUCK

*Capacity indicated is the Shraight Rating (combined weight of chassis body, equipment and pay load) for which each chassis is designed and guaranteed to satisfactorily operate under average conditions. The size of the tires used does not affect this Straight Rating, but to secure maximum tire mileage it is suggested that the total gross weight be limited to a "recommended gross weight" for each tire equipment based on tire capacity. Prices cover base charsis and vary with wheel base and tire combinations. The number of wheel base lengths, tire types, range of "recommended gross weights" and resulting pay load range (assuming nominal body allowance) for each model follows:—

Note: Models T-15 to T-61, inclusive, are available for export only as coach chassis.

| Model | Wheel Bases | Tire Types | Range of "Rec. Gross Weights" | Pay Load Range |
|---|---|---|---|---|
| T-11 | 1 | 1 | 3800 | ½ |
| T-15 | 3 | 10 | 4500- 6500 | ½-1½ |
| T-18 | .. | .. | 7500- 8200 | 1½-2 |
| T-19 | 3 | .. | 7800-10000 | 1½-2½ |
| T-25 | 3 | 17 | 6800- 9000 | 1½-2 |
| T-26 | 4 | .. | 8500-11000 | 2-3 |
| T-30 | 3 | 15 | 10000-12500 | 2-3 |
| T-31 | 4 | .. | 11000-14000 | 2½-4 |
| T-42 | 4 | 12 | 12000-15000 | 2½-4 |
| T-44 | 4 | 12 | 12000-16000 | 3-4½ |
| T-45 | 4 | .. | 13500-16000 | 3-4½ |
| T-51 | 4 | .. | 16500-19000 | 4-5½ |
| T-60 | 4 | 18 | 18500-22000 | 5-6½ |
| T-61 | 4 | .. | 19500-22000 | 5-6½ |
| T-82 | 4 | 12 | 19000-24000 | 5-7 |
| T-83 | 4 | .. | 20000-24000 | 5-7 |
| T-85 | 3 | .. | 25000-30000 | 6-8 |
| T-90 | 3 | 1 | 22000-28000 | 5-7½ |
| T-95 | 3 | .. | 30000-40000 | 7-11 |

Optional rear axle gear ratios available for all models, except Model T-18. Double reduction axles available for Models T-45, T-51, T-60, T-61, T-82, T-83 and T-95.

### GRAMM

| Series | Straight Rating | Wheel Base | | Pay Load Range |
|---|---|---|---|---|
| AX 4 | 8,000 | 157 | 1 | to 1½ tons |
| AX 6 | 8,000 | 157 | 1 | to 1½ tons |
| BX 4 | 10,000 | 157 | 1½ | to 2 tons |
| BX 6 | 10,000 | 157 | 1½ | to 2 tons |
| CX 4 | 12,000 | 157-180 | 2 | to 3 tons |
| CX 6 | 12,000 | 157-180 | 2 | to 3 tons |
| B | 12,000 | 157-174 | 1¾ | to 2½ tons |
| C | 14,000 | 145-196 | 2 | to 3 tons |
| D | 17,000 | 145-196 | 2½ | to 4 tons |
| E | 20,000 | 145-224 | 3 | to 4½ tons |
| ET | ..... | ..... | 3 | to 4 tons |
| G | 24,000 | 165-235 | 4 | to 6 tons |
| G 8 | 24,000 | 165-235 | 4 | to 6 tons |
| GY | ..... | ..... | 4 | to 5 tons |
| GW | 28,000 | 157-240 | 5 | to 7½ tons |
| HY | ..... | ..... | 5 | to 6½ tons |

†Both the four and six-cylinder are also offered in 157-inch wheel base at $1,145 and $1,345, respectively.

### INDIANA

*Six-wheelers.

### MACK

Other wheel bases furnished on all truck models.

In 6-wheel jobs 4 rear wheels driven by chains, foot brake on 4 rear wheels.

*Made also in tractor models.

### PIERCE-ARROW

Optional final drive on Models PW, PX, PY and PZ.

### REO

Models DF, FA, FE and FF are available with dual wheels at additional cost.

*Model DF X can be had with 3 speed transmission and single tires for $885.

Model 1 D can be secured in 164 inch wheel base at $785.

### STEWART

Models 30 and 30X can also be supplied in 120, 140 and 160-inch wheel base.

Models 40XA can also be supplied in 134, 145, 160 and 176-inch wheel base.

Model 27XS can be supplied in 135, 160, 176 and 190-inch wheel base.

*Models 18X and 32X can be supplied in 148, 190 and 220-inch wheel base.

*Models 19X, 31X and 27XS can be supplied in 148, 172, 190, 220 and 235-inch wheel base.

As optional equipment Models 18X, 19X, 31X and 27XS can be supplied with Timken dual redcution rear axle

Models 38-8, 38-6, 48-8 and 58-8 can be supplied in 160, 170, 180, 196, 226 and 241-inch wheel base and worm axle.

### WHITE

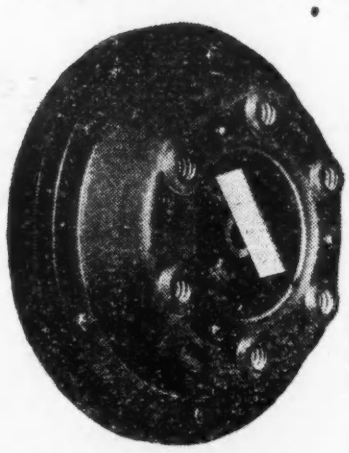
*Six-wheelers.

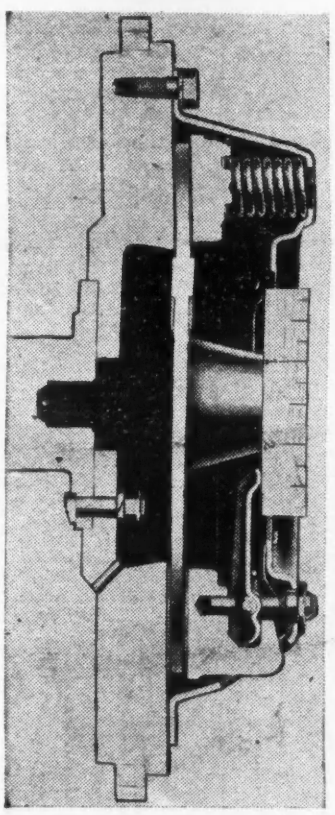
# SERVICE OPERATIONS ON THE THREE NEW BORG CLUTCHES

(Continued from Page 9)

they are balanced as an assembly. 3. Loosen the holding screws a turn or two at a time until the spring pressure is relieved. (This should be carefully done to prevent springing the flanged edge of the cover.) The screws can then be removed and the complete clutch lifted off of the flywheel, all parts except the driven plate (2) (Fig. 1) being assembled to the cover.

If it is found necessary to replace parts of the cover assembly, it can be dismantled, reassembled and adjusted with the aid of an arbor press or drill press as follows: Place the cover on the bed of the press, as





shown in Fig. 2, with a block under the pressure plate so arranged that the cover is left free to move down. Place a block or bar across the top of the cover, resting on the spring bosses. Compress the cover with the spindle of the press and holding it under compression remove the adjusting nuts 5C (Fig. 1) and then slowly release the pressure to prevent the springs from flying out. The cover can then be lifted off, and all parts will be available for inspection. It is advisable to replace any parts which show wear.

**GAUGE PLATE**

**(Fig. 4)**

To reassemble the clutch, lay the pressure plate 4 (Fig. 1) on the block in the press and place the springs on it in a vertical position, seating them on the small bosses on the pressure plate, as shown in Fig. 3. The levers 5A can then be mounted on the cross pin of the eyebolt 5C and the end of the eyebolts dropped into their respective holes in the pressure plate, taking care that the short end of the level is under the hook on the pressure plate. (See Fig. 3.) It is advisable to wipe this short end of the lever and the cross pin of the eyebolt with a little graphite moistened with oil, as this will help to eliminate friction within the clutch.

The cover can then be laid on top of the assembled parts, as shown in Fig. 3, taking care that the anti-rattle springs 5B are in the position, shown in Fig. 1, and that the tops of the springs are directly under the embossed seats on the cover. Also be sure the marks made by you on the cover and the pressure plate are in the correct position. The bar can then be laid across the cover and the assembly slowly compressed to be sure that the eyebolts and pressure-plate lugs are guided through the proper holes in the cover. Care must also be taken that the springs remain in their seats.

Holding the clutch under compression and adjusting nuts can then be screwed down on the eyebolts. The spindle of the press can then be released. The clutch should then be released several times, so that all moving parts will settle into their working positions. This can be done with the press by applying the spindle to the inner ends of the levers.

**SETTING THE LEVERS WITH THE GAUGE PLATE**

**(Fig. 5)**

Satisfactory operation of this type of clutch is absolutely dependent on accurate adjustment of levers, so that the pressure plate face is parallel to the flywheel face. This cannot be accomplished by setting the levers parallel to the face of the release bearing after the clutch has been assembled to the flywheel, because of the variation in the thickness of the driven plate. The only accurate method is to adjust the levers, while the pressure plate is held parallel to the flywheel, by using the Borg & Beck A1 type gauge plate, shown in Fig. 4.

Place this gauge plate in the flywheel in the position normally occupied by the driven plate and mount the cover on the flywheel, turning the holding screws only a turn or two at a time when pulling against the spring pressure, otherwise the cover may be sprung. Before the cover is tightened, be sure the gauge plate is centered and the three flat machined lugs are directly under the levers, except in type 11A1, which has four levers. Any position of these lugs in type 11A1 will give satisfactory results. If the clutch is equipped with release lever plate attached to the levers, this release lever plate must be left off when setting levers.

After the cover has been mounted a short, straight edge or scale (approximately three inches long) can then be laid across the center boss and the bearing surface of one lever. Then turn the adjusting nut until these are exactly the same height. By tilting the straight edge, a "knife edge" setting can be obtained. (See Fig. 5.) The other levers can then be set in turn by the same method. If carefully done, this setting will be within .005 inch. After adjustment is completed, lock the nuts with a small chisel, peening portions of the nut into the slot in the eyebolt.

Loosen the holding screws a turn or two at a time until the spring pressure is relieved, which will allow the clutch and gauge plate to be removed. Assemble driven plate and clutch to flywheel, taking care to place the chamfered end of the driven plate hub toward the rear of the car. Line up the driven plate and pilot bearing with a dummy shaft before tightening the cover holding the screws. Tighten the screws before removing the dummy shaft. After the transmission and floor boards have been assembled, adjust the foot pedal adjustment as directed on page one.

**CAUTION**

Do not under any circumstances let the transmission hang in the clutch assembly. Do not put oil or kerosene in the clutch. Keep facings dry and free from oil. Do not drive with your foot on the clutch pedal. Do not slip clutch excessively instead of shifting gears, as this causes rapid wear of the clutch facings.

# MAY PRODUCTION EXPECTED TO SHOW MARKED INCREASE

(Continued from Page 1)

food and leather industries showed the usual seasonal changes.

Other details of the board's statement were:

"Daily average value of building contracts awarded during April and the first half of May showed a seasonal increase over the first quarter.

"Wholesale prices of commodities declined from 66 per cent. of the 1926 average in March to 65.5 per cent. in April, acording to the Bureau of Labor Statistics, and in the first three weeks of May further decreases in the prices of many leading commodities were reported.

"Downward movements in textiles, non-ferrous metals and imported raw materials, as well as in most domestic agricultural products, except wheat, were offset in part by increases in the prices of coffee, petroleum and petroleum products.

"Further purchases of United States government securities by the Federal Reserve Banks were made during April and the first three weeks in May, and on May 18 total holdings were $1,466,000,000.

"The funds placed in the market through these purchases between April 6 and May 18 were used to the extent of $170,000,000 in a further reduction of member bank indebtedness to the Reserve Banks; and to the extent of $122,000,000 in meeting a demand for gold from abroad; at the same time member banks accumulated reserve balances considerably in excess of legal requirements.

"During May the demand for currency, which had been declining in April, increased somewhat, contrary to usual seasonal movement.

"Loans and investments of reporting member banks in leading cities, which had declined continuously until the middle of April, showed little net change between April 13 and May 18.

"The banks' investments increased by nearly $300,000,000, chiefly in New York city; while loans declined by about an equal amount. There was also a growth in net demand deposits, which reflected in part an increase in bankers' balances deposited in New York city banks.

"Money rates in the open market continued easy. Rates on commercial paper were reduced about one-half per cent. to a range of 2¾ to 3 per cent. for prime names, and the offering rate on 90-day bankers' aceptances, which had advanced to 1⅛ per cent. in the first week of May, declined on May 11 to the previously prevailing rate of ⅞ of 1 per cent."

## LIGHT DUTY GRINDER HEADS

The Modern Grinder Manufacturing Company has developed a new series of light duty grinder heads for mounting on the bench or on a stand.

The cast stand has two bracket type adjustable tool rests. A 1½ by 1½ inch pulley is provided so that flat, V or round belts may be used. Bearings are oiled directly from self-closing oil cups. The unit is supplied with two 4 by 5 inch grinding wheels, one coarse and one medium, or with a buffing wheel or wire wheel and grinding wheel. The height from the base to the center is 3½ inches and from wheel to wheel 5½ inches. The bench space needed is 4 by 4. The spindle is half an inch and the length nine inches. The weight of the head complete is 6½ pounds.

## WIDE PITCH ROLLER CHAIN

The Morse Chain Company is announcing its roller chain in a full range of pitches up to two inches. This unit has been on the market for several years, but the complete pitch range is a new feature.

## J. R. OSHIE OF TRICO HEADS BUFFALO C. OF C.

**Buffalo**, May 26.—John R. Oshei, president of the Trico Products Company, has been elected a director of the Buffalo Chamber of Commerce for a three-year term.

# CONTROLLING EXPANSION AND CONTRACTION

(Continued from Page 9)

dicate the average spacing allowance per foot of seam:

| | |
|---|---|
| Steel | 1/4 to 3/8 in. per ft. |
| Brass and bronze | 1/8 in. per ft. |
| Monel metal | 3/8 in. per ft. |
| Aluminum | 1-5 in. per ft. |
| Lead | 1/8 in. per ft. |
| Copper | 1/8 in. per ft. |

Sheet metal under 1/8 in. in thickness is best handled by flanging the edges, tack-welding at intervals along the seam, and then welding.

The means most commonly employed to prevent buckling or warping of sheet metal during welding is to apply the principle of removing the heat from the base metal adjacent to the weld. In the case of flat seams, a heavy piece of metal such as a section of steel rail or heavy bar stock placed on either side of the seam will effectively prevent the heat from spreading too far and will also tend to prevent movement of the parts by resisting the forces of expansion and contraction.

Exactly the same principle is applied in the construction of jigs and fixtures so universally used to hold sheet metal parts in proper position for welding. The clamping action of the jig prevents undue movement of the parts, while the use of heavy sections in the jig at the desired points will effectively remove the heat from the base metal. In some cases, jigs are water-cooled to increase still further the ability to carry heat away rapidly.

Heat may also be removed from metal adjacent to the welding zone by the use of wet asbestos cement along either side of each seam. In extreme cases a continuous flow of water can be played over the main body of the sheet.

In welding metal of plate thickness (above 1/8 inch), there is somewhat less tendency to buckle or warp, because the greater proportion of metal to surface area tends to diminish the rate of heat flow away from the welding zone. However, in welding long straight seams, the plate should be spaced about 1/4 inch per foot, to allow for the contraction of the seam.

For welding circumferential seams, such as are encountered in pipe, tanks and pressure vessels, it is obviously not possible to allow a progressively increasing spacing around the entire seam. When pipe is lined up for welding, an even spacing of 3/32 to 1/4 inch, depending on pipe size, is left between pipe ends. Tack-welds are then made at specified intervals to hold the pipe in proper alignment during welding.

For large tanks and pressure vessels, the tack-welds are usually supplemented by a series of wedge clamps which are progressively removed just ahead of the weld, and thus enable the operator to control the seam contraction. The exact procedure is determined largely by experience.

A note regarding cold rolled shapes is of some importance. Because of the stresses that are in the metal shape from the cold working, prior to welding the worked portion of the shape should be heated to a good black heat. This will relieve this strain, and there will then be no abnormal stresses to take into consideration while welding.

In considering heat effects while oxwelding gray iron castings with cast iron welding rod, one point in particular should be firmly stressed: For general purposes it can be considered that iron castings are a great deal less elastic, less ductile and, therefore, more rigid than sheet metal or worked shapes. Furthermore, castings are generally of irregular shape, so that the heat from the blowpipe will spread unevenly through portions of the casting adjacent to the weld. Due to the greater amount of welding generally necessary on a casting, there will be more heat effect for which it will be necessary to compensate.

Careful preheating of the entire casting to a good red heat is by far the best means of assuring that expansion and contraction of the metal will be even throughout. After welding, a reheating and controlled slow cooling or annealing will assure the welder that all internal stresses are eliminated. It will also be remembered that preheating and slow cooling are essential factors in assuring proper gray iron structure in the welded casting.

Many castings are small enough so that a temporary furnace is unnecessary, and the welding blowpipe flame can be played over the whole casting to bring it to a red heat. In such cases the welding operation itself is of short enough duration to be completed before the casting loses its red heat. Here again slow cooling is essential to success for elimination of internal stress.

(To be continued)

**STANDARD CUTS GASOLINE PRICES IN CLEVELAND**

**Cleveland**, May 26.—Standard Oil Company of Ohio has reduced the price of gasoline one cent a gallon in Hancock county to meet competitive conditions.


Have you a message for Engineers?

Engineers and production men of the industry will gather at White Sulphur Springs, June 12 to 17, for the summer meeting of the S. A. E.

Each day *Automotive Daily News* will cover the meeting editorially. Copies will be mailed to all important engineers, production men and other factory officials in the industry in addition to those who attend the meeting.

Please send space reservations early. Forms close two days preceding publication.

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